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Learning to Teach in a Virtual Environment: a Case Study of the Louisiana Virtual Classroom Teachers.

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**LEARNING TO TEACH IN A VIRTUAL ENVIRONMENT:
A CASE STUDY OF THE LOUISIANA VIRTUAL CLASSROOM TEACHERS**

Dissertation

**Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirement for the degree of
Doctor of Philosophy**

in

The Department of Curriculum and Instruction

by

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M.A., Louisiana State University, 1992

May, 2001

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ABSTRACT

In the 2000 school year the Louisiana Department of Education commissioned a Distance Learning Task Force Committee to establish State Standards for Distance Education. These Standards supported the core beliefs set forth by the state's educational technology goal: "All educators and learners will have access to technologies that are effective in improving student achievement" (State Standards, p.1).

Emerging technologies, such as web-based instruction, were implemented to support these standards. These new technologies prompted the Louisiana Center for Educational Technology to establish the Louisiana Virtual Classroom. This project was a program that included a consortium of high school teachers for developing and teaching Web-based courses.

This study was conducted to provide insight into fundamental pedagogical transitions for those teachers interested in teaching in a virtual environment, as well as providing online courses. The study participants were a group of five from the eleven teachers initially chosen to this project. The following questions were investigated:

(a) What type of professional development training did educators need in order to teach a web-based course? What skills were needed by the instructor to be fully prepared to teach Internet-based courses?

(b) What teaching strategies required implementation in this virtual environment? What was the role of the educator in this new teaching atmosphere?

(c) What modifications were required in teaching methods to provide the online learner with the same learning opportunities as offered in the traditional classroom setting? What obstacles were confronted as a result of these changes?

(d) How was student progress assessed to assure that students comprehended the material taught?

The data collected and analyzed in this study provided a basic orientation to those future educators interested in offering web-based courses. The information built a basis on which educators developed an understanding of what was required to teach an online course.

CHAPTER 1

INTRODUCTION

In times past, when the word “classroom” was mentioned, the first image that appeared in the mind was a traditional setting -- one with an educator lecturing to students within a four-wall room. The lessons were presented within a certain time frame, with all students working on their assignments simultaneously. However, the Internet is redesigning the way courses can be delivered to students, with the result that time and space no longer constrain teachers or students. Harrsion and Bergen (2000) state that “internet access is becoming more widespread and its capabilities for delivering multimedia lessons are improving daily; the Internet is becoming the vehicle of choice for distributing learning across distances” (p. 57).

The web-based classroom is a relatively new concept in education -- a medium that possesses unique qualities contributing to the selection of the appropriate pedagogy (McCormick & Jones, 1999). The strategies utilized and the training received by online instructors is transforming traditional methodology into an innovative teaching style, motivating students to participate in this new learning environment. In order to offer high school students and teachers in the state the opportunity to participate in web-based courses, the Louisiana Center for Educational Technology established the Louisiana Virtual Classroom Project.

The Louisiana Virtual Classroom Project

To implement this progressive forum, Louisiana approved the first Virtual Classroom Project. Using the Internet to deliver the curriculum required teachers to

redesign traditional pedagogical methods to meet the needs of a virtual environment. The Louisiana Virtual Classroom (LVC) Project was funded through the Statewide Distance Learning Network (SDLN). The goal of the Louisiana Virtual Classroom was to provide high school students with access to courses via the Internet from any location at any time. Often rural schools are unable to hire qualified educators to teach advanced courses to their students. The students from these rural schools have been given the opportunity to participate in web-based classes taught by teachers who are certified and experienced in teaching the core courses required by the Tuition Opportunity Program for Students (TOPS) program. TOPS is a state-funded program that allows students to attend college free of charge if they have graduated from high school with the required grade point average, have taken the required courses for college admissions, and have met entrance test requirement scores.

Other advantages of the LVC program included the convenience for students and teachers of completing work at their own pace, with established times to accommodate their schedules. This provided teachers and students with the freedom to choose when and where learning occurred, and it assured students more control over the learning process.

The Louisiana Center for Educational Technology (LCET), a division of the Louisiana Department of Education, selected a representative with distance learning experience from each region of the state to serve on the committee to select teachers for the Louisiana Virtual Classroom Project. The committee members consisted of technology coordinators and college professors from around the state, who subsequently reviewed and ranked the applications using a rubric. The members of the committee

were searching for educators who had experience in teaching courses required by the TOPS program and who were knowledgeable in the field of educational technology. These selected high school teachers had to be capable of developing and teaching web-based courses.

The Louisiana Virtual Classroom teachers application process was extensive, requiring the recommendation of principals as well as superintendents. Teachers from around the state indicated their interest in LVC. The applicants were required to submit a vitae and a portfolio along with their application, to verify that they did indeed meet the criteria established by the committee.

Eleven teachers were chosen to serve as Louisiana's first educators to teach high school courses online. All of the eleven teachers had from five to ten years of teaching experience in their field of expertise. All of the LVC instructors taught in the same subject areas in which they designed their web-based courses. Each LVC instructor received \$6000.00 to design and teach a course for a year. These online courses were offered to students in both private and public schools in the state of Louisiana.

The students that were enrolled in the online courses were required to go through a basic online orientation that took approximately fifteen to twenty minutes to complete. The students were not required to have any prerequisite courses in computer literacy, nor did they have to have a certain grade point average to take the course. The only requirement was that the students have access to a computer at school for at least one hour a day.

A contact person was selected at each school that had students participating in the Louisiana Virtual Classroom. The contact person could be a teacher, librarian, or a paraprofessional. They did not receive a stipend for their services, nor did they receive any training on how to work with the online students. Their main responsibility was to distribute materials and software that were sent by the LVC instructors. These contact people were also expected to monitor students' progress in the online courses.

In the planning stage of the project, meetings were held with the LVC teachers to discuss the focus of the project. At the initial meeting, the Distance Education Director presented the program and the projected deadlines for the 2000-2001 school year to the teachers. The teachers voiced a number of questions and concerns regarding the logistics of the project, professional development, support, and obstacles.

The teachers were given training on use of the Blackboard Software System (BSS), which enabled them to design their courses on the Internet. In addition, the teachers participated in two online courses offered through the University of California at Los Angeles. The teachers agreed to meet on a regular basis to discuss the program and their concerns.

During the design phase of the online courses, the teachers considered a set of strategies. The primary focus was not on computers or software, but rather on the overall learning process. As recommended in the literature, the planning stage allocated a generous portion of time to the establishment of strategies to align technology goals with the students' learning goals (Ringle & Updegrave, 1998). As the LVC teachers developed the online courses, they realized that the goals must be centered on higher-order thinking skills, focusing on decision making, problem -solving, and hypothesizing

(McKenzie, 2000). It was crucial that teachers accept the challenge of creating a learning environment that fostered student achievement, because the process guiding these Virtual Classroom Teachers would set an engaging precedent for others to follow. These classes would be prototypes.

The courses offered through the Louisiana Virtual Classroom took place online, employing the asynchronous communication method, i.e., no simultaneous interaction between teacher and student was required. Students first read the course materials, then logged on and participated in online threaded discussion groups, and then completed assignments presented by the instructor. McCormack & Jones (1999) cited the benefits for this type of instruction: "The combination of the Web's information distribution possibilities, asynchronous communication, and appropriate pedagogy can free the learning experience from the bounds of time" (p.20).

The implementation stage of the project began in August 2000. The teachers' courses were online and ready to be introduced to the students enrolled in the courses during the fall semester. At that time, the LVC teachers began teaching eleven online courses to students in the state. Five of the eleven teachers were chosen to participate in an in-depth study.

Teachers in the LVC project offered a variety of high-quality web courses to students in the state, and in turn students in the teachers' districts were permitted to enroll in any of the eleven courses offered. A total of approximately 140 high school students participated in this project.

The researcher was employed with the Louisiana Center for Educational Technology (LCET). This enabled her to gather information related to the Louisiana

Virtual Classroom Project. During the time in which the program began to take shape, the researcher was enrolled in a distance education class at Louisiana State University. Having discussed web-based courses, the class utilized online resources for course supplementation; however, designing an online course was difficult to imagine. Curiosity prompted the researcher to enroll in the same UCLA online courses that the Virtual Classroom Teachers were taking for professional development purposes. The researcher was interested in learning about the mode involved in teaching online courses and about the design and development stage of the Internet courses. The online courses sharpened the researcher's realization that tomorrow's educators profoundly and rapidly needed to assimilate teaching capabilities in a virtual environment.

Statement of the Problem

In the state of Louisiana, there is a shortage of high school teachers who are qualified to offer prerequisite courses to students for college admission. This shortage has led to a restricted academic experience for some of the state's high school students, especially those in rural areas. Lacking the necessary courses, some students in the state find themselves ineligible for the Tuition Opportunity Program for Students (TOPS). The Louisiana Department of Education, recognizing the problem, established the Louisiana Virtual Classroom Program. As a result, eleven high school teachers were selected to offer TOPS courses using web-based instruction.

Louisiana does not require educators to possess a distance education teaching certificate to teach online courses; only a limited number of educators have been trained in the area of web-based instruction. Many teachers, required to offer their courses via the Internet, may enter this new teaching arena without knowledge or expertise in this

exciting field. Consequently, some educators may naturally attempt to transfer traditional teaching methods to a web-based environment without any expertise on how to utilize this medium.

However, teachers are finding that they can not directly transport their traditional methods of teaching into a web-based format. A substantial amount of time and energy is required on the part of the teacher to provide an effective course that meets the needs of learners at all levels (McCormick & Jones, 1998). Engineering Outreach (1995), an educational development program, suggested that teachers have additional time and training to reconstruct their traditional methods to conform to an online environment. However, educators should be aware of possible obstacles when making the transition from traditional teaching to online instruction.

Purpose of Study

Online learning has revolutionized the way students learn and the manner in which teachers deliver lessons. Louisiana, like many other states, has realized the value in offering instructional opportunities through this new form of distance education. The Louisiana Department of Education has also come to the realization that teachers must be fully prepared to teach online courses. They must be provided with professional development opportunities, and they must be prepared to overcome obstacles associated with this new endeavor.

The purpose of the case study is to provide insight into the necessary knowledge for teaching courses via the Internet. The Louisiana Virtual Classroom is in its initial stage; therefore, it is imperative at the onset to study the impact and ramifications associated with designing and implementing web-based courses for high school students.

In order to prepare educators for such an engaging transition, it is essential to consider the necessary components to be a successful online instructor.

The focus of this study was to follow the implementation of the project, to discover the strategies that were used, to learn about the professional development that the teachers needed, and to gain a better understanding of what teachers experience while learning how to design and implement an online course for high school students. The findings of this study will contribute to the literature by providing teachers, administrators, and professional development facilitators with a better understanding of the skills, knowledge, and expertise needed to teach an online course effectively. The instructor must know how to design an online course that promotes student achievement. McCormick & Jones (1998) state: "Having some understanding of how all the components of a web-based classroom works, as well as the technology's restrictions, can provide some insight into what is possible or advisable with a web-based classroom" (p.6).

Cyrs (1997) argued that web-based instruction should accommodate different learning styles. Teachers who served as instructors for online courses need preparation in order to provide opportunities for all participatory students in these courses. It is essential that teachers be provided with professional development that allows them to obtain this goal.

The procedures followed in all five cases were qualitative, providing knowledge to guide educators into an understanding of teaching requirements in a virtual environment. Through the case studies, data were gathered which assisted the Louisiana Center for Educational Technology in understanding (1) what professional development

was needed to prepare the teachers to design a web-based course; (2) how the obstacles that the teachers confronted during the course of the semester could be surmounted; (3) how the teachers organized their course materials to accommodate the online learning environment; (4) what teaching strategies should be used; (5) what role the online instructor should assume; and (6) how students' progress could be monitored.

Significance of the Study

The information reported in this study will establish a viable infrastructure for those progressively minded teachers willing to become involved in web-based instruction. Further, this research provides educators with the insight and comprehension necessary to teach distance education to students through the Internet.

Most teachers, when designing courses for presentation in this environment, attempt simply to transfer courses taught in the traditional classroom to the Internet. Teachers have to become aware that it is imperative -- not only for course clarity, but for success -- that research is conducted on precisely what teachers need to know in order to teach a dynamic web-based course.

Research Questions

The questions involved in the research were designed to be inductive in nature, as suggested by LeCompte & Preissle (1994). The following questions guided this study:

- (a) What professional development training is necessary for educators to teach a web-based course? What skills are needed by the instructor to be fully prepared to teach Internet-based courses?
- (b) What teaching strategies are to be implemented in this virtual environment? What is the role of the educator in this new teaching atmosphere?
- (c) What modifications are to be made in teaching methods to provide an online learner with learning opportunities identical to or improved upon

those offered in the traditional classroom setting? What obstacles are confronted as a result of these changes?

- (c) How are teachers to assess progress to assure that students comprehend the material taught?

Definition of Terms

To facilitate this study, a listing of pertinent definitions follows:

Asynchronous – Communicative interaction of sender and receiver does not take place simultaneously

Blackboard System – Software program that allows individuals to create online courses

Distance Education – Educational process between students and instructors separated by distance and facilitated by technology

Computer-Based Technologies – Ways to produce or deliver materials using microprocessor-based resources

Cyberspace – The digital world of computers and the transfer of information between those computers

Educational Technology – The theory and practice of design, development, and utilization employed in the management/evaluation of the processes and resources for learning

Electronic Bulletin Board – A system that allows people to post messages and reply to users' messages -- also referred to as a Discussion Board

E-mail – Electronic mail sent via modem and over a network

Internet – Computers connected by high-speed telephone lines and networks

Needs Assessment – A systematic process to determine goals, to identify status quo and goal discrepancies, and to establish priorities for action

Online Conferences – Readers in a conference may submit thoughts on any topic, but usually on issues, similar to a newsgroup; often, passwords are required, to restrict public access

Streaming – A continuous delivery of time-based media--such as animation, audio, or video--to a user's machine, measured in real time

Virtual Classroom – A course offered via the Internet; students work in an asynchronous environment

Web-based Instruction – Internet teaching

CHAPTER 2

REVIEW OF RELATED LITERATURE

The Internet has become a major presence in education. Educators are just beginning to discover the valuable impact that the Web can have on their teaching methods. The combination of the Internet and other recent technologies are being used by educators to restructure the learning environment in order to support teaching and learning. Linking teachers and students to the emerging telecommunications network is becoming present in literature that focuses on educational reform.

In this review of literature, research related to teaching courses over the Internet is considered. As a foundation for the review, the accepted definition of web-based instruction is provided. The review includes issues directly related to online courses:

- Preparations necessary to implement online courses
- The teacher's role in online courses
- Skills required in teaching an online course
- Extent of professional development training required to teach an online course
- Teaching characteristics of online instructors
- Teaching strategies for virtual classrooms
- Special issues to consider when converting to online instruction
- Evaluation of technology-based learning

Web-based Instruction

The question may be posed as to what web-based instruction actually incorporates. According to McCormack & Jones (1998):

A web-based classroom is an environment created on the World Wide Web in which students and educators can perform learning-related tasks. A web-based classroom is not simply a mechanism for distributing information to students; it also performs tasks related to communication, student assessment, and class management (p.1).

Cyrs (1997) suggests that web-based instruction is able to efficiently accommodate a variety of student learning styles. He states that key elements of an effective online course include the following:

- A home page containing all necessary information
- An introduction, situated on the home page, that includes course requirements, roles and responsibilities of the teacher, together with a brief overview of the course
- Posted assignments and due dates
- Schedule specifying anticipated course events
- Teacher's biography, together with links to vitae
- Course or program evaluation which offers the opportunity to evaluate the course, thus assisting the teacher in planning other online courses
- Communication tools that include a bulletin board and online chat, as well as e-mail capabilities (p. 70).

Web-based instruction is also referred to as a "virtual classroom." The virtual classroom is an alternative form of an authentic learning experience. In a virtual classroom, students are not required to be physically present in a common space at the same time in order to participate (Zukowski, 1998). This special feature makes an entirely new concept with limitless potential feasible for classrooms.

Special Preparations for Web-base Instruction

In all practicality, teachers cannot merely transfer the traditional format of teaching to a web-based course. To offer instruction online, an enormous amount of planning and organization is required on the part of the teacher which can be time consuming. Therefore, Engineering Outreach (1995) advocates that teachers be given additional time to restructure a selected course in order to meet the needs of the online learner.

In addition to time, instructional development also should be a major component for planning the online course (Engineering Outreach, 1995). The comfort level of

teachers with technology is also a consideration. Consequently, teachers should familiarize themselves with new technology available through the Internet. According to Cradler (1994, p.32), "Preparation time needs to be allocated to experimenting with the emerging technology. If teachers are comfortable with multiple technology utilization, they will transfer this knowledge to online learners."

Harrison and Bergen (2000) recommends that further consideration should also include training in course management, delivery systems, and the use of techniques in designing an effective online course. As instructors become more familiar with this new form of teaching, they will become more aware of the resources available for use.

The Role of Teacher in Online Learning

The traditional classroom teacher is often viewed as the initiator of all classroom activities, and as such is held responsible for students' learning opportunities. The web-based instructor is quite the opposite of this description -- online learning is ultimately student-centered and student-driven. According to Jones and Prichard (1999, p.58), "The online environment encourages student-centered learning in which intellectual acquisition replaces the didactic force of the teacher as the main impetus of learning."

By far, the most critical issue in this educational revolution is the role of the instructor. The distance instructor loses a certain autonomy common in the traditional classroom (Cyrs, 1997). In online learning, the instructor becomes a member of a team; subsequently, the instructor no longer has total control of the learning environment. For a number of years, teachers have managed classes by virtue of their control on information. Now, with instant access to vast resources online, students are no longer dependent on the teacher alone for knowledge.

Dede (1995) and Jonassen (1996) suggest that educational technologists have often implied that an effective way to integrate technology into the teaching and learning process is to follow a constructivist model. Brooks and Brooks (1993) indicate that constructivist theory states that students make sense of the world by integrating new experiences into what they have previously understood. There are some behaviors teachers can model if they wish to follow a constructivist prospective. Constructivist teachers organize information around problem-solving activities. Assignments are often problem-based rather than drill-and-practice.

When integrating student experiences with technology, the role of the teacher changes. The teacher no longer has to be in charge, but can give some of the control over to the students and the technology. The task for the teacher is to arrange the learning environment in such a way to provide situations in which students use their own knowledge to construct meaning of a particular problem. A learning environment is created in which students are active participants in the learning process.

Norton and Wiburg (1998) state that the teacher's job becomes one of facilitator in a constructivist model. Instead of telling students the answer, the teacher asks questions to help them discover the answer themselves. For this type of teaching to be successful, teachers need to give students time to explore the material and construct meaning from the experience. That the roles of teachers and learners are changing is an obvious assumption.

Although online learning is in its infancy in a high school setting, a study conducted by Leslie (1994) focused on how teachers view the Internet as a teaching tool. The results from the study indicated that teachers felt that they could guide

students to the information they wanted to learn about. The teachers in the study explained that the Internet provided an opportunity for them to become facilitators as opposed to dictators of knowledge. O'Donnell (1996) says much the same thing: "The real roles of the professor in an information-rich world will be not to provide information but to guide and encourage students wading through deep waters of the information flood"(p. 45).

As educators begin offering online courses, they will expand upon the use of information and learning technologies. This information will align with the curriculum in ways far beyond what is available today through traditional printed media such as text (Batson & Bass, 1996). Changes in pedagogy are inevitable. With teachers assuming new roles, they must be willing to release control of learning to the students and feel secure in their different and perhaps unfamiliar role as a facilitator (Carbone, 1999).

With this subtle shift in classroom control, technology permits students to increase responsibility for their learning. Teachers then serve as facilitators in that process (Soska, 2000). Activities that are student-directed allow learners to build a greater confidence level in their ability to use technology. If students do not immediately achieve success using the available technology, the teacher must be able to diagnose individual learning problems in order to provide students with positive feedback (Means & Olson, 1994). This form of support constitutes a persuasive learning environment for both teacher and student.

Schofield (1995, p. 25) cites classic studies showing that as much as "40% of a teacher's actions in a traditional classroom are specifically intended to maintain and

display authority.” This is virtually impossible with online courses. In such an environment, the role of the teacher is to provide the students with those process skills needed to empower the students -- learning comes more from intrinsic motivation.

Project-based learning, a part of the whole schemata of the online environment, allows a teacher to serve as a facilitator while students' individual expressions of creativity in areas relevant to their interest put them in charge of their own learning process (Javid, 2000, p.62).

Instead of the usual structured pedagogical approach of lecture and assignments, the students in virtual classrooms take an active part in construction and production of their learning. In these settings, teachers serve as guides or coaches, facilitating instead of directing learning (Braun, 1993; Gooden, 1996). Therefore, students must derive meaning from the information in the online course (Watson & Rossett, 1999). The students must take responsibility for learning because passivity is not tolerated in an online environment.

Henry Becker (1993) conducted a study to determine what influenced teachers to take on the role of a facilitator in a technology-based environment. Teachers in Becker's sample who used computers to provide students with project-based learning opportunities involving challenging, authentic tasks were more likely to take on the role as facilitator because they taught in an educational system that:

- Provided a strong social network of computer-using teachers.
- Had a full-time technology coordinator who promotes computer use among teachers.
- Stressed student use of word processing in all their subject matter classes and for extracurricular activities.
- Institute policies for equitable access to computers across genders and ability levels.
- Used computers in subjects such as social studies, fine arts, and business and industrial arts, as well as in the core areas of mathematics and language arts.
- Received district support for in-service training, both in tool uses of computer software and in technology uses pertinent to particular subject domains.

Skills Required to Teach an Online Course

For the most part, online teaching requires the enhancement of skills that teachers already possess, such as diversifying student instruction. Technical skills and communication skills are also important in web-based instruction. Teachers must have some technical knowledge to be able to design and implement a web-based course. They must also know how to communicate using various mediums.

Technical Skills

Vojtek and Vojtek (2000) state that teachers should have the knowledge, technical skills, and resources to integrate technology into any program. However, while it is useful to have technology skills, such skills should not become the deciding factor in choosing to teach an online course. More importantly, according to a survey taken by Wang (2000), teachers stated that they must feel comfortable with technology in order to use it.

Nevertheless, online teaching is inescapable for the future of education. According to Kalny (1999, p. 18), “to confront the new paradigm of learning, teachers of the next millennium will be required to have skills in the ‘Six Cs: computer mastery, communication, change management, collaboration, cooperation, and critical thinking.” Kalny (1999) further states that these newly acquired skills will empower tomorrow’s teachers and will help to prepare students for the future.

Communication Skills

Communication is one of several skills imperative to have if one is to teach online courses. Teachers must interact with students in order to break down barriers that

may have formed because of the distance. Berge (1999) conducted a study involving 33 college students taking a Social Statistics course at California State University. The students were divided into two groups. One was taught in the traditional classroom and the other was taught virtually using the Internet. Results of the students' grades indicated that the group that was taught virtually scored an average of 20% higher than the traditional class in the course. The findings indicated that the virtual class had significantly higher peer communication than the traditional class. The students with the highest grades attributed their achievement to peer interaction.

Professional Development for Teaching Online Courses

Professional development must be considered a key component in preparing an online course. It is suggested that training be conducted using the same type of computers and software that will be used in offering the online classes. This affords teachers with opportunities to become familiar with the equipment and software to be employed. The more at ease a teacher is, the more confident she/he will be as an instructor. Authorities agree, "As teachers gain confidence in their ability to use the technology, they increasingly take responsibility for their own instruction" (Rodes, Knapczyk, Chapman, & Chung, 2000, p. 94).

In 2000, McKay and McGrath conducted a year-long program that explored requiring teachers to receive technology training throughout the school year and during the summer. Teachers were released on a monthly basis to collaborate in professional development opportunities. The goal of the project was not only to encourage teachers to acquire technical skills, but also to explore examples of Internet-based lessons before developing their own Internet-based curriculum projects. This type of training was successful in providing teachers with a foundation on which to build.

Further, educators now realize that telecommunications has the potential to revolutionize instruction. These educators are interested in using this resource with their students, suggesting that “educators need models, support, and practice to integrate telecommunications into curricula and assistance on how to connect these activities to learning outcomes” (Stuhlmann and Taylor (1998, p. 79).

A study using data from the National Assessment of Educational Practices found that students whose teachers had participated in professional development in technology integration exhibited a superior performance level compared to non-participant teachers (Moersch, 1997). However, a teacher’s personal enthusiasm for a mode of instruction is invaluable. According to Peck & Dorricott (1994), teachers are more likely to motivate students using technology if, as teachers, they are excited about using innovative methods.

Schools intending to offer online courses must incorporate those technology tools that promote active learning and a use of open-ended discovery that encourages exploratory methods. These new teaching skills cannot be learned during a one-day “crash course” session. It is an ongoing process that needs to be addressed continuously in order to accommodate the needs of the teachers and students.

A study conducted by Hurst and Bradely (1993) revealed that teachers wanted more than a simplistic one-day technology training session. They wished for the quality of professional development to be an ongoing procedure, built into the overall technology program. In addition, the teachers were desirous of training that linked technology with identifiable instructional priorities previously set by their own districts.

Thus, professional development is necessary to ensure that teachers possess the skills to integrate technology into the curriculum. In pursuit of estimating the need for technological training, a 1998 study conducted by Market Data Retrieval (Conte, 1998) found that 61 percent of teachers surveyed felt they were unprepared to teach, using computer technology. The pivotal question must be why feelings of inadequacy were, in fact, prevalent in regard to technology instruction in particular. Yet another question posed might be whether opportunities were provided for these teachers to receive training in the field of educational technology. An answer may be found with Trotter (1999, p. 37) who states, "The typical teacher still mostly dabbles in digital content, using it as an optional ingredient to the meat and potatoes of instruction." This may correlate with the fact that very few teachers have participated in high-quality technology-related training during a given school year. Rakes (1999) stresses the idea that teachers should be involved in training that moves beyond basic technology skills and exposes them to professional development that successfully weaves technology into the curriculum.

Another study was conducted to discover how often teachers use the Internet as an instructional tool (Becker, 1999). The researcher involved in the study found that those teachers who engaged in the traditional form of teaching -- classroom instruction without technology -- revealed that a large portion of their instruction time was spent in preparing students to take the standardized test mandated by the state. These teachers believe that the use of technology would hinder their teaching progress, which in turn would hinder student achievement on state-required standardized testing. Becker (1999)

believed that teachers' pedagogical beliefs were directly tied to the level of technology integration that occurred in their classrooms.

The greatest resources for professional development could perhaps be the teachers themselves. Rather than pay outside consultants to come into the school districts to conduct training sessions, many school districts are conducting technology workshops presented by teachers within their system. In Louisiana's Calcasieu Parish, a group of teachers formed an organization called "PLUG." PLUG was chosen as an acronym because this educational group wanted teachers to feel so at ease with technology integration that they [teachers] could simply "PLUG" it into their daily teaching lessons. In keeping with the group's enthusiasm, the Calcasieu school district provided release time for teachers to participate in technology training activities sponsored by this supportive organization (Southern Technology Council, 1997).

Many studies reveal that the medium in which learning occurs does not have a notable impact on the outcome (McCormack & Jones, 1998). It is also stated that the approach to using a different medium for learning has a greater effect on the outcome (Moore & Kearsley, 1996). An important point to remember when preparing and training teachers to confront this new environment is to teach them how to convert existing in-service programs to a distance education format. From that knowledge alone, teachers gain a better insight on how to be a distance education facilitator.

Operating on the premise that the web-based classroom requires a new form of pedagogy, each pedagogy has its own unique characteristics. Milone (2000) stated that training opportunities should initially introduce teachers to technology trends, familiarize them with new software, and demonstrate how to integrate what they learn

into their curriculum. As technology is always changing, so should the training and preparation for teachers who teach online courses. Professional development will enable teachers to accommodate the needs of the students involved in web-based learning.

Teacher Characteristics

Teacher characteristics have a significant impact on student achievement in an online course, according to McCormack & Jones (1998). An instructor who teaches these classes must be able to interact with students on a daily basis. It is tantamount for students to interact with the teacher in order to allow an appropriate degree of exchange of ideas and information (Moore & Kearsley, 1996).

Interaction

Instructors must be prepared to spend a large portion of their time optimizing interactive instruction in order to impact student achievement (Loeding & Wynn, 1999). Instructors must first focus on enhancing interactivity in online courses, because interactivity provides students with opportunities to ask questions, make comments, participate in online activities, and feel like part of the whole class experience. Instructors should actively engage students in the process of communication; this can be done in a scholarly and nurturing manner (Shotsberger, 2000).

In agreement with the benefits of interaction between teachers and students, Hiltz and Turoff (1993) report that studies conducted on web-based instruction indicate that students who receive constant interaction from their instructor tend to produce higher grades. This “social presence” can be obtained by establishing a tone of informality and friendliness and by encouraging participation (Owston, 1997).

An inherent obstacle presented by a lack of interaction is that a student may experience feelings of isolation. According to McCormack & Jones (1998) in distance

education, students who feel isolated often drop the class. McCormick & Jones (1998) also state that some teachers are not willing to teach online courses because of the isolation they believe they will experience. In web-based classrooms, the use of group communication and interaction help decrease this feeling of isolation. Diller's (1995) viewpoint of interaction and online learning summarizes why teachers must possess the ability to interact with the students. He states,

A new medium can empower and liberate you, if you let it. But if you try and colonize it -- if you try to cram your magazine through a phone jack and call yourself interactive -- you'll get nowhere. Because you will not have thought through what it *means* to be interactive (Diller, 1995, p.24).

Online projects that support collaboration between students empower interaction. Projects centered on real-world challenges entice students to become active proponents of learning. In addition, group projects allow online learners the opportunity to get to know their peers' viewpoints and value system (Zvacek, 1999).

Teaching Strategies

Pedagogically Sound Course

Before a course is reengineered to accommodate the online environment, the content must adhere to standards established by the instructor. The course must be pedagogically sound in order to meet the needs of the online learner (Grenier-Winther, 1999). According to McCormack & Jones (1998), the greatest benefits of web-based instruction occurs when the pedagogy is designed to effectively employ technology to increase the quality of the learning experience. Technology must not be used as a substitute for poor pedagogical practices (Wheeler, 1999). Technology is meant to enhance the teaching experience, rather than replace it.

Organization

Teaching in an online format requires teachers to be more organized than in a regular classroom setting (Harrison & Bergen, 2000). In the opinions of Pitt & Clark (1997, p.47), "Online educators must organize situations that address the various facets of learning in order to provide significant experiences for each class participant." The web site where the class is held should be organized in a manner which is easy to navigate. The instructor should have contact information for the students if they do not understand the organizational make-up of the course.

An instructor should use pre-class study questions and advance organizers to encourage critical thinking and participation on the part of the learners (Engineering Outreach, 1995). If the materials are organized to consistently meet the needs of the students, they will become comfortable with the nature of teaching and learning in an online environment.

Collaboration

Collaboration is yet another skill which involves working with students to assist them in the personal goals they have set for the online course. Collaboration goes hand-in-hand with cooperation: the teacher becomes part of the team (Kalny, 1999). Establishing an environment that promotes collaboration among peers is imperative. Teachers who have taught online courses suggest scheduling projects that encourage students to have contact with peers immediately.

Exchanging ideas via e-mail or through a discussion board provides a means of establishing a support system built upon interaction (Grenier-Winther, 1999). A trend which advocates interaction is the use of collaborative group projects that can be

completed virtually (Trotter, 2000). When students have the opportunity to share ideas with peers, it allows them to comprehend what they are learning (Berge, 1999).

In an ongoing research study being conducted at the University of Central Florida, 38 faculty members teaching 48 web-based courses were asked to compare traditional classroom instruction to online instruction; results found that: “63% of the faculty involved felt they had a definite and marked increase in interactivity with their students” (Cornell, 1999, p.63).

Tracking Progress

As students engage in online instruction, an organized method for tracking progress and record keeping should be employed by the instructor. Tracking methods aid in keeping students informed of progress in the class (Watson & Rossett, 1999).

Students should be aware that the instructor possesses organizational skills that pertain to student achievement. Such awareness serves to assure confidence both in the course and in the instructor.

Engagement of Student in Learning Process

Another strategy is to engage students in the learning process. If efforts are made to adapt the delivery system to motivate and meet the needs of the students, they will actively participate in course (Engineering Outreach, 1995). Knowles (1991) states that actively involved students retain more information than students who are reactive and wait passively to be taught.

Assessment of Online Program

When assessing an online program, instructors must reevaluate the content they have taught and decide on instructional strategies that enhance their teaching skills

(New Jersey Curriculum Framework, 1996). When implementation occurs, less time needs be spent on rote activities requiring basic drill and practice. These teaching strategies limit the teacher's role as the primary source of knowledge, and impede students assuming a more active role in their online learning process.

Making the Conversion: Issues to Consider

As educators begin making the transition from traditional methods of teaching to online instruction, issues involving the conversion need to be addressed. The challenges that go along with this conversion focus primarily on technical and security issues.

Technical Issues

Technical issues must be considered because they make the difference in course effectiveness (Grenier-Winterh, 1999). A web-based classroom requires infrastructure support and administrative procedures that are basically different from the traditional classroom (McCormick & Jones, 1998).

The Server

The server issue in online instruction needs to be established before the course is planned. The central computing facility at a campus must be able to serve the programs needed for the course (Grenier-Winterh, 1999). The structure of any large collection of information must be organized and familiar (McCormick & Jones, 1998). If it is not, participants in the online course will experience problems performing required tasks. It is crucial to decided how the online instructional materials are to be served, even before the coursework is developed.

Technical Problems

Ndahi (1999) conducted a study to investigate what prevents a teacher from offering online courses. The result showed that due to past encounters with technical

problems, 84% of the instructors stated they did not care to offer a course using technology as the main form of delivery (Ndahi,1999). The teachers in the study stated that some of the technical problems included malfunctioning computer hardware and difficulty in setting up software that provided multimedia tools. According to Ndahi (1999) these issues caused the teachers to become frustrated with the program.

Resistance to the Unknown

According to Naisbitt (1992, p.5) teachers resist technological changes because of fears of the unknown. Peck & Dorricott (1994) conducted a study in a school district consisting of 1000 teachers. The teachers' skill levels ranged from nonusers to intermediate technology users. The research was centered around how teachers start integrating technology into their curriculum. The educators involved in the study stated that there were three stages of implementation to be encountered: (1) the line of least resistance, where teachers and students resist the new technology; (2) users realize the potential of technology, and; (3) users learn the new functions for the technology, based on its potential. This is the stage where teachers and students ask themselves: "What are all of the possibilities that exist with technology?" Peck & Dorricott (1994) reported that at this point, educators begin searching for a paradigm shift in order to transform their old pedagogical practices into innovative methods of using technology.

Security

Like all areas of education, online learning must confront security issues. Often, online security consists of password protected materials(Grenier-Winterh, 1999). Like all web sites on the Internet, there is always a chance that intruders will break the code and visit the online course. There are various levels of security. One end of the

spectrum, instructors give students administrative privilege; at the spectrum's opposite end, security is so tight that even a system manager may have a hard time getting into the system (McCormick & Jones, 1998). There is usually a mid-point where instructors are assured security from Internet vandals, but are still able to move around freely as administrators while providing students some web site privileges.

Copyright Laws

When designing and implementing online courses, teachers need to address copyright laws. Loeding & Wynn (1999) state that online instructors must prepare their materials for courses with respect to copyright laws and student interaction. As this form of teaching is recognized for the opportunities it provides, more educators will begin designing courses for the Internet. Questions begin to surface relating to copyright and intellectual property rights.

Educators need to be aware of the laws that govern copyright issues at the federal, state, and local levels (Grenier-Winterh, 1999). Course developers must think ahead when designing an online course. Developers may need to acquire certain rights to use resources in their virtual classroom (Cyr, 1997).

Current copyright law governing distance education is 20 years old, and was modeled by TV-mediated distance education (Spero, 2000). Copyright laws state:

Distance education performances must be transmitted to classrooms or similar places normally devoted to instruction. Second, distance education performances must be accessed by students at the same time that the instructor provides the performance or display -- that is, delivery by the instructor and receipt by the students cannot be separated in time (Spero, 2000, p. 1).

For web-based distance education to achieve its potential, students should be able to access remotely all educational material available to students in a physical

classroom, and they should be able to do that any time at any location, such as from a student's home computer on the weekend.

Thus, copyright law should be amended to enable remote access for all educational activities currently permitted in a classroom, understanding the concept that adequate safeguards must exist against the misuse of copyrighted material in a manner that would harm its potential market.

Evaluating the Use of Technology-Based Learning

Assessment of the student's progress for online learning also must be considered. All students do not enter a course with the same skills, just as all students do not exit that course with the same level of skills or knowledge (Zahn, Zahn, Rajkumar, & Duricy, 1999). Teachers should conduct assessments to monitor student progress. It is also beneficial to "provide authentic assessment in order to provide the appropriate instruction to meet the needs of the students" (Cheek, Flippo, & Lindsey, 1997, p. 411).

Student Evaluation

It is imperative that a correlation be made between student achievement and the implementation of technology in the classroom. A study conducted by Kromhout and Butzin (1993) showed a statistical difference between student achievement on standardized test scores and student achievement using technology implementation. The 'Computers Helping Instruction and Learning Development' (CHILD) study was a five year investigation in nine Florida elementary schools, which began in 1987. Over 1400 students participated and their teachers received training which included not only the technological components of the program but also emphasized establishing a collaborative environment with other teachers in the project. Much of the students' daily

routine involved self-paced interactions in a learning station environment. Student empowerment was a key concept of this project.

Standardized test scores indicated a positive and statistically significant result across all grades, schools and subjects, with the largest effects appearing for students who had been in the program for more than one year. When surveyed, none of the nine schools expressed dissatisfaction with the project, five planned to expand their level of participation and nine new schools were about to become involved.

Kromhout and Butzin (1993) stated, "The goals of Project CHILD go beyond improving achievement as measured by standardized tests. The program stresses problem solving... and higher order thinking skills" (p.45).

Measurement of Effectiveness

Through evaluation, schools can understand what measures are working effectively and what technology initiatives are not successful. In order for educational institutions to continue to fund technology programs, information is needed about the impact it is having on the participants involved (Moersch, 1999).

Problem Detection

Evaluation also enables participants to catch potential problems that may cause the whole program to fail (United States Department of Education, 1998). Only through early detection can problems be resolved and plans revised in order to make the technology program effective.

Personal Process Assessment for Students

Another reason for evaluation is that students gain a better understanding of their accomplishments and their progress through evaluation (Zvacek, 1999). Students'

mastery of the content should be monitored daily by the instructor to provide a perspective on how effectively the online instruction is being received (Gray, 2000). Most online learners gain a sense of control and take greater pride in their work when they are aware of how they are doing compared to the established course standards (Zvacek, 1999). Frequent assessment can provide this for the student.

Positive feedback received from evaluation has the potential to motivate all who are involved, including teachers, administrators, and key leaders involved in the program. Progress can only be witnessed through accomplishments that are acknowledged through evaluation.

Evaluation Approaches

To evaluate a program, one may use a formative or summative approach. The main purpose of evaluation is to provide information to all participants so that they may make improvements or modify any areas that may need to be addressed (North Central Regional Educational Laboratory, 2000). Some examples may include focus groups to assess students' attitude toward the program, interviews, and surveys and questionnaires to receive feedback from teachers, students, and administrators (Rothwell & Kazanas, 1998).

Formative Evaluation

Formative evaluation allows teams to determine what revisions need to be made in order to make the program run more efficiently and effectively (Smith & Ragan, 1999). Maslowski & Visscher (1999, p. 239) state that "formative evaluation is an integral part of the planning and designing process as well as the implementation stage."

In formative evaluation, issues such as usability of the program and its impact on students achievement must be considered.

Summative Evaluation

In summative evaluation, information is collected to make decisions regarding the overall program (Rothwell & Kazanas, 1998). Decisions are made during the summative evaluation to determine if the program should continue or if major revisions need to be made (Smith & Ragan, 1999). Examples of summative evaluation integrating the use of technology may be electronic portfolios or projects that demonstrate a student's overall ability to use technology as it relates to certain academic content areas.

Assessment Instruments

Quesada (2000, p. 46) stated that "when integrated, technology-enriched, authentic projects are combined with portfolios and performance-based assessments all students have the opportunity to become successful learners." Electronic portfolios, rubrics, and collaborative projects can be completed virtually as informal assessment tools.

Electronic Portfolio

Electronic portfolios are constructed by collecting students' work, constructed on the computer, and compiling it into an electronic format. This type of evaluation is ongoing, and the assessment of the student's work is thereby performance-based (Schelle, 2000). Arter and Spandel (1992, p.36) define the portfolio as "a purposeful collection of student work that tells the story of the student's progress, efforts, or achievement in a given area."

An electronic portfolio should consist of an organized collection of the student's work as it reflects the educational standards (Tuttle, 1997). The portfolio can focus on one content area or reflect cross-curriculum materials (Zvacek, 1999). "Portfolios provide teachers, administrators and students with a profile of progress that is made over a certain time period" (Cheek et al. 1997, p. 411). The premise of electronic portfolio assessment is to provide students with feedback and educational guidance.

Tuttle (1997) states that an electronic portfolio is "a concise, annotated collection of student work that reflects educational standards." Components of an electronic portfolio may include digitized video conference clips, multimedia presentations, audio clips, digitized pictures, and text files. Using technology to build portfolios allows evaluators of the program to determine if the technology has transformed the students into independent thinkers (Johnson, 1996). Electronic portfolios can reflect learning across the different content areas, or it may include materials designed for a specific academic domain (Zvacek, 1999). This tool is capable of providing students and teachers with an effective way of monitoring progress using technology (Moersch & Fisher, 1995).

The Rubric

A rubric is another tool that can evaluate the progress of the technology program. It is simply a set of criteria against which products may be evaluated (Zvacek, 1999). This form of systematic scoring helps to reduce subjectivity of the final rating of the overall project. A rubric provides uniform and objective grading to online projects (Reinhart, Anderson, and Slowinski, 2000). It includes various performance levels that are expected to be achieved by the participants involved in the program. Rubrics

provide guidelines that allow stakeholders involved in the technology to program a progress report (McGinn, 2000).

A rubric is another form of assessment that teachers can use for online courses. This assessment tool is designed to establish criteria for which the students' work is scored (Zvacek, 1999). Value points are assigned to certain categories according to how well they meet the established standards. Rubrics must be constructed objectively in order to ensure that students' work is evaluated in an unbiased fashion (Cheek et al.1997).

Evaluating the Impact of the Technology Program

Mayer & Schustack (1999) conducted a study examining what students learn in an environment that is rich in technology. The study was conducted at three schools; an informal collaborative learning environment was created, composed of elementary school-aged children from low-income homes. Participation was voluntary, and students learned from one another using computers as a tool. Students learned basic computer information regarding operations and technology terminology. The young learners also explored educational software that required them to follow directions to solve math problems. The results showed that students who participated in the study did better on standardized tests in the areas of comprehension, problem solving, reading, and math. The researchers stated at the end of the study that they felt that the students' academic achievement could be directly tied to the influence of technology.

Another study was conducted to determine how technology is being used by teachers and its impact on student achievement (Moore, West, and Bartolac, 2000,

p.31). Assessment consisted of teacher appraisal standards, together with rubrics that reflected technology integration into the curriculum. The results revealed the following:

- An overwhelming majority of teachers involved in the study perceived that current technologies supporting curriculum and instruction are relevant to their areas of instruction. In general, fewer than 10 percent of teachers indicated that technology application was “not applicable” for their teaching situation.
- Between 10 percent and 17 percent of teachers reported “nonuse” of knowledge and skills in classroom management of technology.
- Ninety-five percent of teachers reported participation in district-sponsored professional development courses or workshops in technology.

Using the data collected from this study, the school district was able to revise its current technology program where needed. The district, along with the teachers, was able to establish technology improvement goals in order to accommodate the needs of the students and teachers at the individual schools.

West (2000, p.61) states that in order for teachers to influence student performance, a teacher should be aware of: (1) what the student already knows, (2) what the students does not know, (3) what the student should know, and what to do to move the student from what he or she doesn’t know to what he or she should know. Using diverse methods of assessment provides teachers with this information.

Middleton and Murray (1999) conducted a case study that focused on the correlation between the extent to which technology is implemented into the classroom and its impact on standardized test scores of students in grades four and six. A sample

of 17 teachers was selected and surveyed using the LoTi (Levels of Technology Implementation Instrument). This was done to determine whether teachers who characterize themselves as high-level technology users in their classrooms had students with corresponding high standardized test scores in math and reading.

Results showed “a significant difference in both math and reading scores among the fifth grade students, but no significant difference was found among the fourth grade students” (Middleton & Murray, 1999, p.109). Teachers at the fifth grade level reported that they had in fact used technology on a regular basis, and felt comfortable with the integration process. The fourth grade teachers, however, reported that they did not feel confident in their ability to integrate technology into the curriculum. They reported that they did not use technology in the classroom because they had not taken part in technology-related professional development classes or workshops. The findings of this study make a direct connection between technology use and its impact on student achievement.

A journal article entitled “Leadership for a New Era: Making the Most of Technology in Our School” lists a number of important components that can measure the effectiveness of the technology program. The article emphasizes the importance of teaching students how to become independent learners who are able to access, evaluate, and communicate through the use of technology. It also asserts that the content skills taught should align with technology in order to bring about student achievement. The author (Carbone, 1999, p.26) emphasizes that “placing computers in classroom does not automatically make students in classrooms academic achievers; rather, computers serve to help students become literate by developing their critical thinking skills.”

Research reveals that technology will continue to make its way into the classroom. "Educational practitioners need to embrace a new paradigm that positions technology as a powerful catalyst in the school reform process" (Moersch, 1997, p.52). The effectiveness of technology integration depends on the function of the curriculum content as well as instructional strategies that are employed by the educator (Cradler, 1997). It is inevitable that school districts will need to establish a technology program that is well designed, effectively implemented, and evaluated for effectiveness.

CHAPTER 3

METHODOLOGY

Qualitative methodology is used because it permits an accurate and organized means of answering predefined research questions (Bogdan & Biklin, 1992). It is presented in the form of five individual case studies, comprised of a larger case study of the Louisiana Virtual Classroom Project. Although most case studies arise out of a desire to explain an unknown occurrence (Yin, 1994), case studies occupy a distinctive place in evaluation (Patton, 1990; Guba & Lincoln, 1985). Researchers have used the term “case study” to refer to a strategy utilized by the researcher (Yin, 1989). According to Patton (1990) a case study is a method of conducting qualitative research that attempts to identify individual differences or unique similarities from one experience to another.

By nature, qualitative research methods are flexible and open-ended (Patton, 1990). In the current research, the case studies were designed to bring out details from the viewpoint of the participants, using multiple sources of data to culminate in qualitative research. Some authorities describe qualitative research as “well-grounded . . . an explicit explanation of a process occurring in local context” (Miles & Huberman, 1994, p.1). Further, qualitative research provides in-depth understanding in a practical dimension. According to Miles and Huberman, (1994): “With qualitative data the researcher can maintain a chronological flow of events and derive meaningful explanations from the occurrences. The emphasis is then on a certain phenomenon embedded in its context” (p.1).

Research Design

The research design of these case studies followed four distinct stages of development in advancing the qualitative research of the case study (Yin, 1989, p.29):

1. Design of the study
2. Conduction of the study
3. Analysis of evidence
4. Development of conclusions, recommendations, and implications

These stages establish a research framework on which to build; each stage is to be completed before advancing to the next stage. This method, according to Yin (1994, p.13), investigates a contemporary phenomenon within its context 1) when the boundaries between the phenomenon and contest are not clear and 2) when a variety of sources of data are used.

The research questions that guided the Louisiana Virtual Classroom case study were:

- (a) What type of professional development training did educators need in order to teach a web-based course? What skills were needed by the instructor to be fully prepared to teach Internet-based courses?
- (b) What teaching strategies required implementation in this virtual environment? What was the role of the educator in this new teaching atmosphere?
- (c) What modifications in teaching methods were required to provide the online learner with the same learning opportunities offered in the traditional classroom setting? What obstacles were confronted as a result of these changes?
- (d) How was student progress assessed to assure that students comprehended the material taught?

Participants in the Case Studies

A homogeneous sample is necessary for a case study (Patton, 1990). Therefore, the selection of the five participants pivoted on the following criteria:

- Five years experience in an area of expertise
- Ability to teach two sections of the course, one virtually and one using the traditional method in their school
- Willingness to participate in the case study to completion

In addition to the above qualifications, the researcher selected participants in the Louisiana Virtual Classroom Project who were expert teachers in their specific content areas. The intent was to discover common threads between these expert teachers. They all designed and implemented their online courses. It was these common threads that joined these cases (refer to figure 3.1).

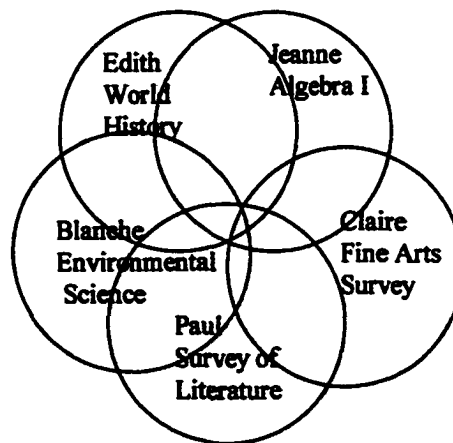


Figure 3.1: Similarities among the cases

Individual Participants

Jeanne was an Algebra I teacher at a parochial high school in the state of Louisiana. She served as Math Department Chairperson as well, for a number of years. Her teaching career began 21 years ago with a Bachelor of Science Degree in secondary

math education and a minor in English. She continued to keep abreast of math standards and assessment through constant involvement with National Council of Teachers of Mathematics (NCTM). Jeanne was a state finalist for the Presidential Award for Excellence in Mathematics Teaching.

Claire had been teaching art in a public school for 15 years. She was working on her Masters Degree, choosing both art education courses and technology classes to aid her in preparing to teach in a virtual classroom. Claire was an active member in Louisiana art associations. In addition, Claire had been recognized by Who's Who Among America's Teachers and had received a Louisiana grant for a Computer Graphics Program, as well as grants from the PTA and the Impact2 Academic Distinction Foundation.

Edith had a Bachelor of Science Degree in mathematics and social studies education and would complete an Online Teaching Certification from UCLA Extension during the year. She had 19 years of teaching experience in the public school system in Louisiana and Texas. Edith had been in her current teaching position as a history teacher for five years. She was the sponsor of numerous extracurricular activities at her high school.

Blanche held a Bachelor of Science Degree in biochemistry as well as an M.A.T. in science teaching. She was a member of five different national science organizations and had been recognized for achievements in science and technology: Tandy Outstanding Teacher of the Year, Presidential Award for Excellence in Mathematics and Science Teaching, and Outstanding Biology Teacher. Blanche developed and implemented the Science and Technology Enhancement Program Innovative Classroom Project; the

project was funded by the State Board of Elementary and Secondary Education from the State of Louisiana Quality Education Support. Blanche's teaching experience encompassed 18 years in a Louisiana private school.

Paul received a Bachelor of Arts Degree in education, and is working toward a Masters Degree in Administration and Supervision. Paul had taught English for seven years in the public school system in Louisiana. He participated in professional development sessions, focusing on technology integration into the high school curriculum. At the time, he was serving as a Technology Mentor Teacher for his teaching district.

Data Collection Procedures

In pursuing answers to the questions established in the initial stage of the research design, five data collection procedures were used: observations, interviews, pre- and post-surveys, the Profiler instrument, and questions posted on the Blackboard Discussion Board. The various data collection instruments allowed the researcher to triangulate the data collected for each case study. The information collected by the different methods created a "thick description" of the context and permitted the researcher to bind the cases together in meaningful ways.

Observations

The first data collection procedure incorporated was observation. Observation proved to be a method of witnessing the dynamics of the project in human dimensions, exuding an energy that could not be drawn from statistically. Yin (1994) stated that observations are useful to acquire additional information about the case under study; and further Patton (1990, p.10) that "an evaluator might participate in all or part of the

program under study, participate as a regular program member, client or student.”

Information pertaining to what events occurred, where they were conducted, and who was present was observed during the meetings involving the five teacher participants in this study. The researcher chose to serve as a participant observer, the primary data collection methodology chosen by ethnographers (Spradely, 1980; LeCompte & Preissle, 1993; Patton, 1990).

The teachers participating in the case studies were originally scheduled to meet once a month to discuss any concerns or suggestions. However, with their over-crowded schedules and with no release time provided for the teachers by the districts, only two face-to-face meetings were held during the study. The setting for the observations was at the Louisiana Center for Educational Technology. The meeting dates were August 9th and October 19th, 2000. During these meetings, the teachers discussed problems and concerns, and they exchanged ideas. The researcher recorded the topics that the Louisiana Virtual Classroom teachers posed during the meetings. This information was then placed in a table format that allowed the researcher to search for themes that surfaced during both meetings. Approximately fifty tables were designed to hold the information collected from the meetings. An example is provided in figure 3.2.

Interviews

Interviews provided the second form of data collection, in which the standardized open-ended interview approach was implemented (Patton, 1990). In this method of interviewing, the exact wording and sequence of questions were determined in advance. To ensure reliability, all five teachers were asked the same basic questions in exactly the same order. These questions will be discussed later in this section and can also be found

in Appendices C and I. The questions were open-ended to elicit responses with a narrative format. Such a format provided a personal and qualitative response and allowed the teachers to express their opinions in a nonrestrictive manner. Patton (1990, p.285) addressed this technique: "Moreover, the interviewing is systematic and the necessity for interviewer judgment during the interview is reduced."

Initial interviews were conducted in August with each participant, and a final follow-up interview was conducted again with each participant in December, for a total number of two interviews per participant. The initial interviews were held at the participants' individual schools, while the final interviews, as requested by the participants, were conducted at the researcher's office in the Louisiana Center for Educational Technology. The participants believed that absence of the school setting allowed them to focus more fully on the questions asked by the researcher.

The same questions were asked of all participants in the same sequential order. Patton's (1990) standardized open-ended interview approach was applied during the interviews. The responses were recorded using a tape recorder; thereupon the responses were transcribed into a table for a comparison analysis. Approximately ninety tables were designed to hold the data collected from the interviews with the participants. A sample table is provided in figure 3.3.

The following questions were asked in the initial interviews. The basic purpose of the questions was to inquire about the procedures taken by the Louisiana Virtual Classroom teachers to establish their courses and to ascertain what skills and strategies they possessed coming into the course.

1. What type of professional development training have you received -- inservices, college courses, or workshops? What skills did you acquire?

Technical Problems	A suggestion was made to give each teacher server space for their files. The Internet traffic on Blackboard site seems to be busy during peak hours 12:00-3:00.	Blanche
Technical Problems	Teachers had trouble getting students to complete certain assignments because they did not have the correct software	Edith

Figure 3.2: Table with data from meetings

What type of professional development training have you received? What skills did you acquire?	Paul	Online professional development was beneficial. It helped us to see what the student would be going through and how to design a rigorous course for them.
	Claire	Professional development that assist teachers on how to use the online resources and tools. Course that assist the online instructor on ways to use the computer as a tool just like in the art class I use clay and acrylic.

Figure 3.3: Responses to interview questions

2. Go step-by-step with me to explain how you designed the course you are offering. How did you transfer materials you already teach to an online format?
3. What teaching strategies will you use to implement your course?
4. What do you think the role of the teacher should be in the online course? Do you think it will be easy to take on this role? Do you take on this same role when teaching the same course face-to-face?
5. What teaching modifications were made to adjust to the online course? What obstacles do you expect to confront as a result of these changes?
6. Tell me about the method in which you will assess students' progress. How do you expect to reach the students that seem to be falling behind in course work?
7. What do you think the strongest aspect of this course is? What do you think needs work or adjustment?
8. What is the greatest fear you have about offering this online course?

In December, the researcher conducted an exiting interview with all five participants.

The questions focused on obstacles they had confronted, professional development they felt was needed, and strategies they had used during the months as they taught the web-based courses. The interviewees' responses were recorded and analyzed using the same method utilized in the initial interviews. The following questions were asked of each participant in the final interview:

1. Since our initial interview, have you confronted any unexpected problems? If so, how have you dealt with the situation to resolve the problem?
2. Has the method of student assessment that you have selected been successful? Please explain in detail any revision you would make to fine-tune this process.
3. What one teaching strategy have you used throughout these first few months that has been more beneficial than any others?
4. If you were allowed to take one more professional development course to help you prepare for the second semester, what would it be and why?

5. Have you had to make any teaching modifications that you had not expected in the beginning of the year? What are they, and how have you made the transition?
6. If you were asked to assist in the selection of next year's Louisiana Virtual Classroom teachers, what skills would you expected these applicants to possess in order to apply for the job?
7. Would you teach another online course again? Explain your response in detail.

Online Pre- and Post-Surveys

Online pre- and post-surveys that were designed by the researcher were the third form of data collection used. The researcher established a Blackboard web site, which provided an opportunity for the participants to share ideas, respond to discussion questionnaires, and complete surveys. The Blackboard web site (see figure 3.4) was designed to match the format used by the Louisiana Virtual Classroom teachers to design their courses. The teachers were asked to complete surveys on the Blackboard web site (see Appendix B). Surveys are often used for data collection. The assumption is that the best way to obtain information from informants is to ask them (Smith, 1986).

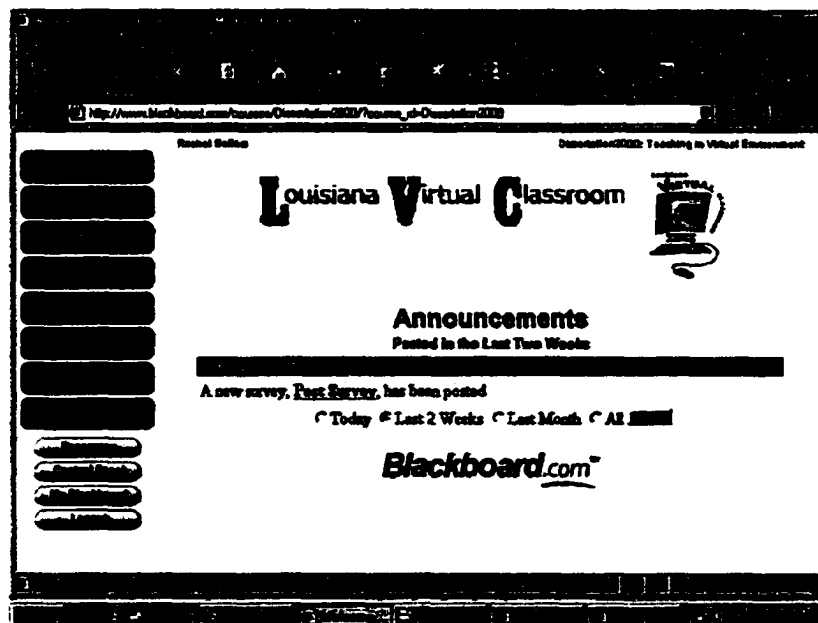


Figure 3.4: Blackboard site for gathering data

The five Louisiana Virtual Classroom teachers involved in the case studies completed the pre-survey online during the first week of September. The participants answered the questions based on their individual experiences. The responses were electronically calculated and were displayed cumulatively for the researcher's use in analyzing the data (see Appendix J). For example, the researcher asked the participants how they viewed their position as an online instructor. The responses indicated that four of the five participants viewed themselves as facilitators, while one participant thought of herself as a guide.

The post-surveys were completed in December. The questions stated on the online survey reflected the actual hindrances experienced by the participants, together with their feedback on how they conducted their web-based course (see Appendix K). The responses from the post-surveys were viewed in a table format that allowed the researcher to compare and contrast the cases (see Appendix L).

Profiler Instrument

A web-based instrument located on SCRTEC's (Southern Central Regional Technology Education Consortium) Profiler web site was the fourth type of data collection method used. The Profiler was designed to assess teachers' ability levels in certain areas. These findings are reported in a chart and graphic organizer format. At the beginning of the study, the participants were requested to complete the Profiler instrument (see Appendix H). The researcher designed the questions for the participants in the study and entered them in the Profiler template (see Appendix H).

The teachers answered the Profiler questions online, and the results were automatically generated and placed in a table according to strengths and weaknesses (see

Appendix M). In addition to displaying the data in a table format, the Profiler enabled the researcher to view individual responses. Moving the computer's mouse over the graphical organizer displayed each question, along with the names of participants who are considered to be fluent and familiar with the skill described. As a result, the Profiler provided an overall picture of the participants' responses (see figure 3.5). In order to analyze and compare the participants' responses to the Profiler questions, the researcher placed the data in a chart (see Appendix N). By viewing the information in a chart, the researcher could locate unique traits and compare variations that existed between the participants.

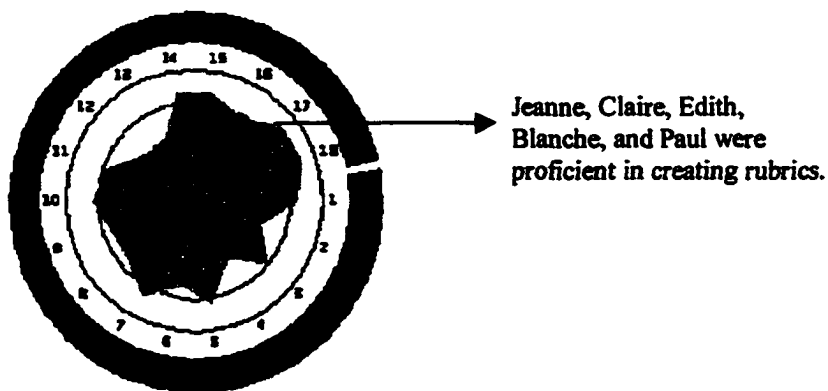


Figure 3.5: Profiler Graphic Organizer

Online Responses to Discussion Prompts

Responses to questions posted on the Discussion Board was the fifth form of data collection. Participating teachers were asked to provide a weekly response to questions posed on the Discussion Board (see figure 3.6). The Discussion Board was located on the Blackboard web site established for the case studies.

The participants were asked to visit certain web sites that contained electronic journal articles that aligned with the research questions under investigation. The addresses for the journal articles were found in the “external link” section on the Blackboard web site, designed by the researcher to collect data for the case study (see figure 3.6 and 3.7). The teachers visited the various Internet sites and made correlations between their views and what was stated in the articles.

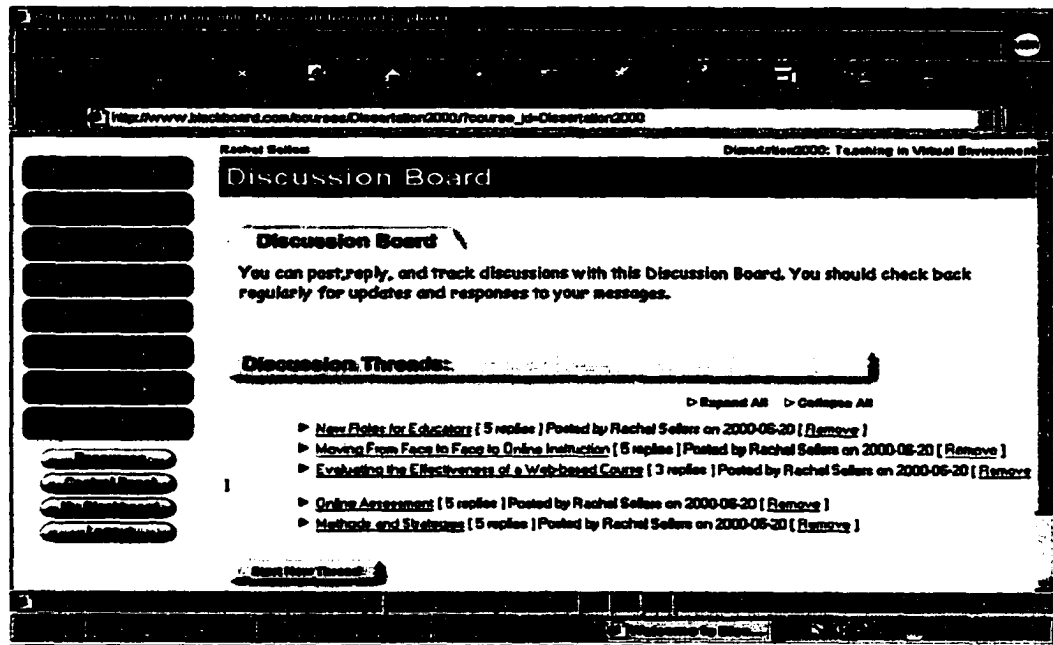


Figure 3.6: Discussion Board

Questions designed to encourage the Louisiana Virtual Classroom teachers to reflect upon their views of the issues discussed were posted on the Discussion Board in the Blackboard site. The teachers' responses provided insight into their beliefs regarding web-based instruction. The questions correlated with the following topics:

- New roles of educators who taught online courses
- Issues associated with making the transition from face-to-face to online instruction
- Evaluating the effectiveness of a web-based course
- Online assessment
- Methods and strategies for online teaching

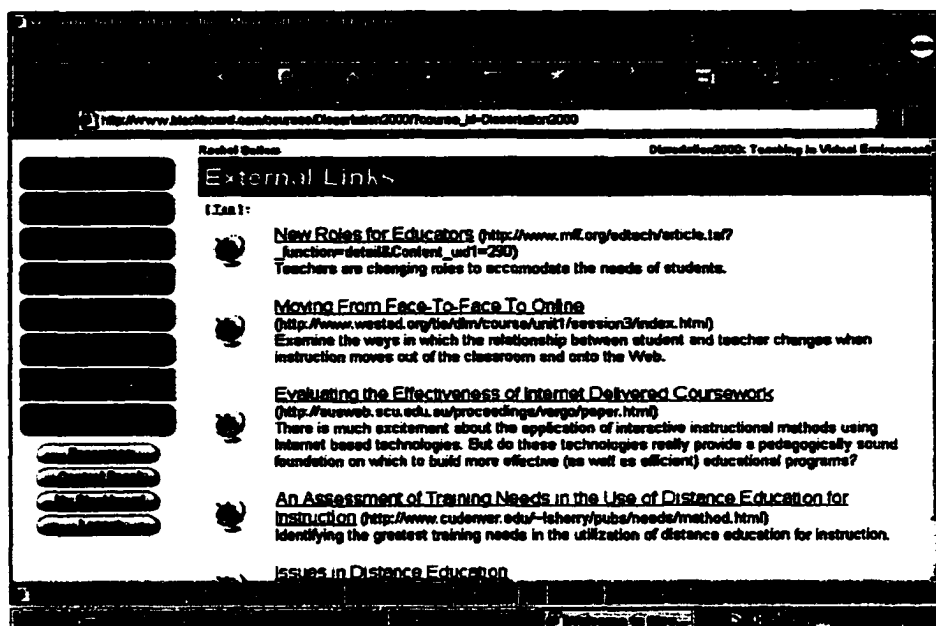


Figure 3.7: External links correlating with discussion questions

Data Analysis

There are a number of approaches to analysis in the practice of qualitative research. Most of these procedures involve a system of identifying categories based on patterns and themes that emerge through various data collection procedures (Miles & Huberman, 1994). After sorting, comparing, contrasting, and labeling observed patterns, a system for classification emerges (Patton, 1990). Miles and Huberman (1994, p.56) further elaborate: "Analysis is reached by differentiating and combining data retrieved based upon the reflections one makes about the information collected."

Glaser and Strauss (1967) developed a coding system as the basis for the constant comparative method and its impact on grounded theory. That system was refined when researchers suggested listing families of codes, such as "setting codes, strategy codes, relationship codes, and other pre-assigned codes established at the beginning of the study" Bogdan and Biklen (1992, p.61).

Miles and Huberman (1984) further simplified data coding and analysis in suggesting that “analysis consists of three concurrent flows of activity: data reduction, data display, and conclusion drawing verification” (p.21). After the data were collected from the interviews, observations, and Discussion Board responses, they were coded and inserted into tables (figures 3.2 and 3.3) using Miles and Huberman’s methodology (1994). Each area identified was assigned a certain code number. For example, the code for professional development was one. When topics relating to professional development appeared in the data, the researcher would place a number one by the item. After the coding was done, the data were placed in a table according to the code. Miles and Huberman (1994) state that this methodology provides “an organized, compressed assembly of information that permits conclusion drawing” (p.245). Table format provided a new way of arranging and thinking about the more textually embedded data. This type of data display allowed the researcher to discover systematic patterns and interrelationships.

The information collected in the online pre- and post-surveys designed by the researcher (see Appendices J and L) was systematically displayed in charts and graphs. The data collected from the SCRTEC Profiler instrument produced graphs and charts that permitted comparison between each participant and allowed the researcher to find commonalties that existed among the five participants (see Appendices M and N). By using Miles and Huberman’s (1984)) guidelines, the researcher was able “to assemble and organize information in an immediately accessible, compact form, so that the analyst [could] see what is happening and either draw justified conclusions or move on to the next-step analysis” (p.96). The use of both graphs and charts in conjunctions with the

coding analysis method allowed the researcher to draw conclusions from the data gathered.

Trustworthiness of a Case Study

Lincoln and Guba (1985) proposed four main techniques for determining the trustworthiness of a case study. These four techniques -- credibility, transferability, dependability, and conformability -- were addressed in the case study. This methodology was applied to ensure that the data collected and analyzed were accurate and unbiased.

Credibility

Miles and Huberman (1984) focused upon the establishment of credibility during the data collection procedures. They state that this is a crucial time, because “every effort must be utilized in order to analyze factual information that reflects the phenomenon being studied” (p.20).

One method used to ensure credibility was persistent observation, which pinpointed crucial information collected (Lincoln & Guba, 1985). During the observations of the Virtual Classroom meetings, the researcher transcribed and categorized notes for information in a database.

The “member check” system (Lincoln & Guba, 1985; Spradley, 1975) was another method used to ensure credibility. A member check ensured that all data were reported correctly. The participants were able to review their transcripts and provide feedback on the accuracy of the information. According to Spradley (1980), if the participants feel that the findings were being reported accurately, the data collected are more credible.

Transferability

The second technique that Lincoln and Guba (1985) suggested to strengthen trustworthiness was transferability. This was achieved through purposeful sampling. The five Virtual Classroom Teachers involved in the case study were selected because they possessed all of the characteristics required to maximize the scope and range of data gathered (Lincoln and Guba, 1985). According to Patton (1990), "The logic and power of purposeful sampling lies in selecting *information-rich* cases to study in-depth" (p. 169).

With this in mind, transferability was also achieved by providing a detailed description of occurrences during the data collection period. Lincoln and Guba (1985) stated, "A full and thick description will provide a substantial basis for similarity judgment" (pp. 359-360).

Dependability and Conformability

Dependability and conformability enhanced trustworthiness; these qualities were established by using audit trails. A colleague of the researcher served as an external auditor because she was the Distance Education Director for the Louisiana Department of Education. The Director reviewed notes for specific details, analyzed survey results for accuracy and examined questionnaires to confirm data consistency. To further ensure dependability and conformability, the Director of Distance Education and the researcher met weekly to determine the accuracy of all analyses. Patton (1990) suggested that any credible data required the researcher to enter the investigation with an unbiased position. An auditor served in the capacity of a reviewer, scrutinizing the findings of the researcher to eliminate any bias, should it occur (Miles & Huberman, 1994).

Triangulation

Research should employ a “triangulated research strategy” (Lincoln & Guba, 1985; Patton, 1990). Consequently, the rules used to ensure accuracy in case studies are called triangulation (Stake, 1994), and such rules arose from the need to confirm study credibility. The triangulation in this case study was established by incorporating multiple methods for collecting data. These were observation, interviews, online surveys, the Profiler instrument, and responses from participants that were posted on the Discussion Board. In the opinion of Denzin and Lincoln (1994), “The use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question” (p.2).

Confidentiality

Confidentiality was a vital component of this case study. The identity of the participants was concealed to eliminate the possibility of revealing personal information that would compromise their positions. A consent form was signed (see Appendix A) between the researcher and the participants to assure that the data reported protected their anonymity. Bower & de Gasparis (1978) stated that this procedure is necessary due to “special interest groups who have become aware of the uses of data for commercial purposes” (p.32).

The online data were password-protected to ensure that the information submitted by the participants was seen only by the researcher. Each participant had his or her personal access code to enter the Blackboard web site for completion of the surveys. The Discussion Board, located on the Blackboard web site, limited responses solely to

the participants. Such safeguards ensured that access to site-shared information was restricted to the participants in the case studies.

Reporting Case Studies

The cases are reported individually in chapter four. The following topics were addressed:

- Professional development required for online instructors
- Skills needed to teach in a virtual environment
- Design of the Louisiana Virtual High School courses
- Obstacles confronted during the case studies
- Teaching strategies used in web-based instruction
- Role of the teachers in an online
- Assessment used to monitor students' progress

Chapter Five contains a cross-case analysis designed to compare the data collected from all five cases. Charts, tables, and graphs are used to accurately report the data. Finally, suggestions and recommendations for future plans regarding the Louisiana Virtual Classroom Project are made in chapter six.

CHAPTER 4

PRESENTATION OF CASE STUDIES

Eleven teachers were selected to pioneer a new web-based program in Louisiana designed to take the students in the state to a new frontier in learning. Five of those teachers were selected to participate in a case study to provide data that will help to refine and improve the program for the next year. The information from the case studies will assist the Education System in Louisiana to move forward in the area of distance education. It will also provide other educators who are considering teaching courses over the Internet with a foundation to build upon.

This chapter presents the case studies of five teachers selected to teach in the Louisiana Virtual Classroom Project. The courses taught by the educators were Algebra I, Fine Arts Survey, World History, Exploration and Analysis of Environmental Issues, and Survey of American Literature. The identities of all individuals involved are confidential and reported through pseudonyms. The participants' viewpoints and backgrounds are described in detail, using information collected in observations, online surveys, interviews, and responses to questions on the Blackboard Discussion Board. The research questions posed in Chapter 3 guided the data collection and analysis process.

Jeanne -Algebra I

Jeanne has been a math and science teacher in the private school system for over 20 years. When she applied to teach a course for the LVC project, she knew that it would offer the students in her all-girl school the opportunity to take online courses offered by other teachers in the program. It would also give her students the chance to

interact and share ideas with students from around the state who were also taking online courses.

Jeanne also realized that this experience would also assist her in learning how to teach students from a distance. Fourteen students signed up for her web-based Algebra I class. The students were a combination of both male and female high school students that were enrolled in schools around the state. The students were eighth and ninth graders.

She, like all of the other LVC teachers, was given an hour during her school day to work solely on her online Algebra course. During this time, she would post assignments to her course site and return e-mail from her students. Jeanne's scheduled hour was at 9:00 AM every morning. She felt that if she posted the information early in the day, the students would be able to respond during their hour during the school day that was dedicated to working on their online course. Most of her students completed all of their work at school because they did not have computers at home.

Professional Development

Jeanne acknowledged that the two courses she participated in from UCLA were very beneficial because the experience permitted her to see:

. . . online learning through the students' eyes. Even though I have been in teaching for a long time, math has changed so much. It shows that a lot of freedom is given to the student in an online course; this would not always happen in a traditional classroom. The courses also allowed me to see the different activities that you can conduct with the students and it demonstrated what worked and what didn't.

Jeanne had participated in a day-long workshop on how to use the Blackboard software. She thought follow-up sessions after the initial presentation of the software

package would have been beneficial. In the face to face meeting held at the Louisiana Center for Educational Technology, Jeanne stated that:

Initially, when you get started you are concerned with the necessary components. After assimilating the components, we might have had additional training in the 'bells and whistles' of the program. It would have been wonderful to use the more sophisticated devices. I had to 'stumble' across the extras that really interest students.

Jeanne wanted to take a course or a workshop on copyright laws as it related to online courses. Since she did not begin the Algebra I class with a textbook, she relied mostly on scanning material and posting it to the course. To avoid copyright infringement, she adopted a textbook for the second half of the year, and sent copies of the textbook to the students.

During the Louisiana Virtual Classroom meeting that was held in October at the Louisiana Center for Educational Technology, Jeanne brought up the issue of copyrights again. She asked for suggestions from the other teachers. They were all in agreement that they needed to know more about the laws governing copyrights. They asked the Director of Distance Education to send them current information regarding this matter.

Jeanne also commented that she should like to take an online course specific to her content area, since mathematics was a difficult subject to convert into a web-based curriculum. Jeanne felt that it was a challenge to go beyond simple drill and practice activities in a search for creative ways to present mathematics online.

Skills

Jeanne expressed a number of ideas concerning the skills needed to teach online courses. She felt that teachers must be well organized, and that materials should be

arranged to meet the needs of the students. Jeanne suggested the students be informed that the entire course had been meticulously planned and well structured.

In Jeanne's opinion, "A devout commitment to students is a definite requirement. The teacher has to be very present to the student. The teacher must 'pull' the students immediately at the beginning of the course." She also felt that students should have immediate feedback. Jeanne believes that although the teacher needs to be very conscious of time, students need to feel that the teacher is working around the clock to meet their needs.

Jeanne suggested that procrastination should be avoided when a teacher offers an online course because too much can go wrong. Jeanne recommended planning ahead, which provides the teacher with time to incorporate the necessary revisions to accommodate the needs of the students.

As Jeanne completed the Profiler survey, she acknowledged her familiarity with various technical aspects associated with an online course, but she did not consider herself to be a fluent technician. She was also versed in setting up a computer system and connecting peripheral devices, yet she did not feel confident in configuring a computer to connect with a network.

When asked what skills a teacher should possess in order to teach in the Louisiana Virtual Classroom, Jeanne offered, "They have to be technologically literate to see the possibilities that online teaching can provide." She felt that if teachers spend the bulk of their time learning technology, they lose sight of the curriculum.

In the final interview she reiterated that teachers should be well organized to teach courses online. She further ascertained that teachers should be technology literate

to comprehend the vast capabilities of the Internet and the course software. In addition to these skills, she advocated the necessity for online instructors to provide immediate feedback to the students.

Course Design

On the Profiler survey, Jeanne indicated that she had created the online Algebra I course which would require students to take on a more independent role in their learning. The online Algebra I course is based upon the Louisiana State Framework and the NCTM Standards. The course is designed to enable students to fully understand concepts associated with Algebra I. The course focus is directed to student-centered learning, which gives the students the opportunity to experience investigations and discoveries, group interaction, lab experience, hands-on activities, and technology applications.

Some of the goals and objectives of the Algebra I online course were to:

- 1) gather, organize and graph data to form conclusions about real world problems
- 2) have the students work in cooperative groups to compare problem solving methods, and to gain an understanding of group structure
- 3) solve problems that might involve solving equations or inequalities, both linear and quadratic, graphing both 1 and 2 dimensional, data analysis
- 4) learn to use calculators and computers as tools to problem solve, experiment, interpret results, and verify conclusions

- 5) communicate mathematics both informally and in well-written sentences using appropriate vocabulary and symbols in explaining problem solving situations and their solutions
- 6) strive to attain a comprehensive understanding of the concepts and skills in taking an online Algebra I course

The students were encouraged to spend at least 50 minutes a day at the web site, completing activities such as posting responses to discussion questions, answering online assignments that may involve group interaction, or reviewing the work of other students in the class. The students were given participation grades, and required to visit the site at least four times a week. The instructor subsequently tracked statistics of usage by students.

The course material was organized into units. Each unit contained “sessions” that addressed different Algebraic concepts (area and volume, multiplying algebraic fractions, special numbers in multiplication). Each session had assignments that reinforced the Algebraic concept taught. The assignments directed the students to do lab investigations and report on mathematical findings or to complete enrichment activities on the Algebra CD. Other activities may request the students to download files containing real-world problems for solving. The students collaborated with other peers to derive solutions. Students submitted completed assignments to the instructor via e-mail, posted it to the Discussion Board, or placed it in the “Virtual Drop Box”.

The teacher posted announcements on a daily basis. These announcements were the first item that the students noticed when they visit the web site. Each announcement detailed where the students were to go on the computer program to find the activity for

the day, with a reminder that the instructor welcomes questions from the students if they don't understand the assignment.

Posting of instructions was incorporated into Jeanne's online course after a few months on a day-to-day basis, rather than a weekly basis, because students felt overwhelmed by weekly assignments. According to Jeanne, "They lost track of what they were supposed to be doing. They had trouble focusing on more than one thing at a time."

When Jeanne was asked during the interview about how she accomplished the transformation with her Algebra I course, she said that first she researched other virtual math courses being offered in other states. Her next step was to visualize how to transform materials from the Algebra I course she had taught face-to-face.

Another important preparation for Jeanne was to engage in online chats with students and other teachers who had been through the process. She stressed the importance of education; according to Jeanne, one should "educate oneself, because of the different environment; it is a challenge to develop a curriculum that aligns with these changes. Simple things that don't require much work in the face-to-face environment now takes a lot of time and effort."

The course design encourages the students to get involved in self-discovery labs. I try to follow the same procedures in my virtual class as I advocate in my face-to-face lab. I have the students gather the materials needed to conduct the math problems. Students take on more responsibility in the online course because they have to take it upon themselves to remain focused on the Algebra activity that has been assigned.

This year has been an adventure for Jeanne. She has discarded her math textbook, and created projects and activities centered around the Internet, as well as the

pre-course Algebra I CD given to the students. The assignments focused on group projects requiring the students to use higher order thinking skills to solve math problems.

During the August meeting that was held at the LCET, Jeanne shared with the other LVC teachers that she felt that her course was a “work in progress.” She commented that the timeline imposed by the state for designing their online courses were hard to meet. She stated that more time would have allowed her to organize her course materials more efficiently before placing them on the web-site.

Due to the course being redesigned, modifications had to be made. Jeanne remarked that decisions connected with student progression determined what topics needed to be eliminated and what topics would align with the online course. Those modifications were fashioned to course design. She relied heavily on Internet activities -- the Algebra CD did not meet the needs of the students, because its problems were basically remedial math activities. She explained that students need more stimulating activities to motivate them to incorporate higher order thinking skills.

Obstacles

One of the main obstacles that Jeanne confronted involved technical problems. Often, the server was down during those times she intended to present her assignments for the students. There was no technical support contact person to assist her with problems after school. So, she was on her own.

Technical difficulty had also been a “hurdle” for her students. One example Jeanne offered was their trouble in opening a multimedia slide show. It was frustrating to those students who lacked the proper software (plug-ins). She foresaw that technical

problems could contribute to the drop out rate for a course. Jeanne noted in the Profiler survey that there was no system in place to provide assistance if students were unable to access the web-based course. This was a problem that she felt should have been provided at the state level, as opposed to school level.

One obstacle continuously resurfacing was the students' obvious inability to accomplish simple technological tasks, such as sending an attachment with e-mail messages. According to Jeanne, "The range of the student-ability level as it related to technology was so diverse, that I had to teach basic skills." She suggested that students be screened before taking an online course next year: "This would allow the Virtual Classroom Teachers to focus on the curriculum -- not just the technology."

Yet another obstacle that Jeanne felt should be addressed was a strong sense of isolation from other Louisiana Virtual Classroom teachers. She advocated there be more communication and collaboration during the planning stages among teachers as well as students. Jeanne believed the obstacles she experienced should be addressed on a regular basis.

Jeanne felt there was opportunity for improvement in several areas. Her experience prompted her to say:

The Algebra CD does not have supplemental worksheets. It will be difficult for the students because they won't have space to work problems. This could possible scare students, because they are used to certain supplemental materials that correlate with math concepts. It is difficult for some students to step outside of their comfort zone.

On a personal level, a primary obstacle to the course dealt with Jeanne's own emotional reactions to the virtual classroom:

It is so new -- you learn as you go. I wish we [teachers] had met to support one another, and to discuss problems and setbacks. It would have helped to commiserate together as we faced the challenges of designing a course. This collaboration might have prevented the feelings of isolation that I experienced during the period in which I was designing the course.

In her opinion, more communication among the teachers would have been beneficial.

Jeanne also was concerned with the time lapse. She stated on the Discussion Board, "It took several days to get material back from students. The students needed to become familiar with the new form of communication between teacher and students." She followed by emphasizing that the students had gotten frustrated when she did not respond back immediately via e-mail. Jeanne reiterated this concern by sharing "the students need to know that they cannot get impatient when I don't respond to their questions immediately."

Teaching Strategies

Group work was used to induce students to become actively involved in the learning process. Jeanne stated, "This strategy let students know they were not working in isolation. Group work lent itself to online courses. Monitoring was easier because everyone was involved."

Interaction in the group projects undoubtedly fosters unity among the students. Jeanne commented that in the face-to-face classroom, she sometimes lectures to a class of 20 students:

It is difficult to know who is not listening or responding. In a virtual classroom, students are unable to whisper about what they are doing this weekend, because when they do the group work online, all their comments and suggestions are posted to the discussion board -- which I see.

Jeanne noted that she had encouraged communication among the students throughout the semester as they shared ideas to complete assignments. Group work had been very successful. Jeanne then assessed participation of students in the group by viewing archived virtual chats.

Additionally, Jeanne thought that if a teacher does not present the material in a well-thought manner, students may become frustrated with the course. Jeanne was persuaded that organization could curtail that problem.

Jeanne reported a familiarity with the use of web-based communication to collaborate, publish and interact with peers, experts and other audiences, especially students. She also stated that goals for the Algebra I online course had been set, accompanied by a logical implementation plan and change of strategies if needed, and measurable objectives.

The pre-survey revealed that she would be incorporating project-based learning into the course. Through these projects, she hoped to promote peer collaboration and interaction between the students.

Role of Teacher

Using group projects as a teaching strategy allowed Jeanne to foster communication between the students which allowed Jeanne to take on the role as a facilitator. On the Discussion Board (see figure 3.6) Jeanne stated that since technology has become an important part of the curriculum, both students and teachers discover new things everyday. She also admitted to the other LVC teachers in the face-to-face meetings, her early personal struggle with the role of the teacher as an authoritative figure:

A lot of students without mathematics skills grow bored with the lecture method. Students need to be drawn in if they don't have mathematical skills. In the late 80's, the National Council of Mathematics adopted new standards that changed the role of the teacher, and students have become more involved in discussion making. This has assisted me in giving up the dictating role.

She stressed that as an online teacher, it was imperative that one be very specific: "Face-to-face, I could make jokes with the students and see an immediate response. In an online course, I have never met these students -- I find it hard to relate to their responses." She stated that in both a regular classroom setting and in a virtual environment, students should take an active part in their learning process. Jeanne thought it was more effective when they worked through the problems to find solutions in a group atmosphere.

Assessment of Students' Progress

The students took attitude surveys at the beginning of the course to discover any fears of math and confront them immediately. The focus is to dispel any math phobias the students may possess. In addition, it pinpoints weaknesses and strengths of the class. Jeanne felt that the survey assisted her in assessing what computer skills the students brought with them, and what their actual attitudes were toward online courses.

Writing skills are developed extensively -- much depends on the students' ability to communicate their answers in written form. Jeanne confessed "the students in my regular Algebra class probably will not have all the opportunities afforded the online learners to enhance their writing skills. It is more important that my online learners tell me the process by which they arrived at their answer."

Less work involving math drills is required by students, but with more of an explanation required on how students synthesize and analyze problems to derive answers. Jeanne insisted they think through the problems. She chose to maximize each

problem, even if it meant cutting back on some activities. Her objective was to receive good quality work from the students, rather than a quantity of unchallenging math problems for the learner.

The students also received assignments involving group work. They utilized the equation editor in Microsoft Word, technology that enhanced the lessons. The second level incorporated a unit test, and assignments that were scored using a rubric. Next, the students completed monitored tests for both mid-term and final exams. The test was not administered online, but traditionally, with paper and pencil.

Jeanne stated on the Profiler instrument that she was familiar with creating an assessment rubric that could be used as an alternative form of evaluation. The breakdown of the Algebra I course assessment is the following: (1) 20% was participation. Students are required to take an active part in group discussions and online projects; (2) 20% of the student's grade was based upon projects. Criteria was given for each individual project; (3) 20% of the grade was based on assignments; when students completed online assignments, they receive points based on the effort and; (4) 40% of the grade was allocated to online quizzes which reviewed the material that was taught; two tests, midterm and final was administered with a teacher monitoring the students -- the online quizzes and tests are timed.

Jeanne posted math worksheets as Microsoft Word Documents. The students downloaded the worksheets, completed them, then placed them in the "Virtual Drop Box." Subsequently, the worksheets were reviewed and returned to the students via e-mail, with suggestions and comments to further direct them. The students were able to

keep track of their grades by going to the “Student Tools” area located on the Blackboard site to check their progress.

In the follow-up interview, Jeanne commented that her methods of assessment had worked well. She had placed more emphasis on participation, because students had enjoyed working together to accomplish a predetermined task. Jeanne also mentioned that the students wanted immediate feedback on their completed assignments and projects. She corrected all assignments and returned them, together with explanations of corrections and revisions. In Jeanne’s opinion, “This process allowed the students to know that good quality work was expected from each one of them.”

Claire - Fine Arts Survey

Claire’s fifteen years of experience in the public high school setting had prepared her, she explained, for the challenge of teaching Fine Arts Survey online. She was initially disappointed that only twelve students were enrolled in her web-based course, but after the course began she realized that it was an opportunity to give individual attention to the fourteen- and fifteen-year-olds that were ready to take Fine Arts Survey over the Internet. The class was made up of eight girls and four boys from six different schools.

When she originally received her schedule for the 2000-2001 school year, she was surprised that her principal did not leave an hour available for her to work on her online course. In the Louisiana Virtual Classroom application, the principal agreed in writing that at least one hour would be allocated to teachers to allow them to work on their online course. She discovered that her principal had placed detention students in her class during the time period that was suppose to be allocated to LVC work. Claire

brought the issue up to her principal, and after much discussion she was given the free hour in the afternoon to post assignments and offer support to her students in the online Fine Arts course.

Professional Development

Claire received her first technology training when she received a computer grant in 1994. Subsequently she drafted a grant to design a curriculum for computer graphics. In the face-to-face meetings with her fellow LVC teachers, Claire shared about the importance of her grant:

It helped me design the curriculum on which I now build in the Fine Arts Survey course -- teaching students how to use the tools, and showing them how to express themselves through media. It also taught me how to use the computer as a tool, as I use clay and acrylic in the art class.

Further, the technology training provided by the grant assisted her in those methods and techniques utilized in construction of the project.

Claire had participated in the orientation for Blackboard software and had previously taken classes at Louisiana State University using Blackboard, so that she was familiar with the software product. Two courses she took through UCLA reinforced her training, as she learned how to organize both materials and online resources for the survey of the fine arts.

During the final interview, Claire commented that she would like further training on the Blackboard software because she wanted to learn how to make the course more interactive with sound and video. These sophisticated components were not explained at the first Blackboard workshop. Claire explained that pre-training sessions on Blackboard prior to the design of the courses would have been beneficial.

She also mentioned that all of the professional development opportunities that she experienced allowed her to learn as a student learned. This made her more understanding of what the learner needs in order to succeed in an online course and assisted her in designing and implementing a web-based course that was student-oriented.

Skills

Claire offered an analogy as she compared the design of her course to a cooking recipe:

I gather all of my available resources and categorize, organize, research, and then pull the ingredients together -- all of the materials -- and lay [the design] out. I sort them according to my plans for teaching it, which once again revisits the whole notion of organization. Once I decide which lesson to teach, I use materials that blend in with the topic taught. This cookbook recipe works well when teaching art skills.

The lesson must be presented accordingly, once the teacher has completed the necessary steps for preparation. According to Claire:

Presentation skills are definitely needed by the online instructor. The visual, verbal, and auditory abilities to present the information for presentation is extremely important in teaching. I'm not a traditional teacher. I don't have certain strands that are mandated by the Department of Education to follow.

Her approach to online teaching is that the skill is drawn from being human. It is imperative in this approach to teach students how to research. One example given was the drawing process. By Claire's standards:

I can't draw a cup unless I know where it came from and of what it is made. Applying the history, the proportions, the math and the background information, along with organization of the material, works well together.

Claire believed that a teacher must be knowledgeable about various software packages, to make the learning experience diverse and engaging for the students. She

also considered technical skills to be extremely beneficial when teaching an online course. Advocating a structured curriculum, Claire averred, "Students need a set plan to follow. It involves organization skills on the part of the teacher."

In addition to technology skills, a teacher must be organized. For Claire, it was imperative to have her materials systematically arranged for the students to easily access the information without complications. She also noted that when activities are organized, students tend to become engaged in their subject matter.

In Claire's closing remarks, she reiterated what she felt were the skills that a teacher needs to participate in the Louisiana Virtual Classroom. She stated that technical skills are a necessity for finding resources on the Internet and for locating web sites conducive to the particular content.

Claire indicated on the Profiler instrument that she was familiar with setting up a computer system and could connect peripheral devices. She also possessed technical skills, such as configuring a computer to a network, and was able to correct a locked-up computer. In addition, she indicated that she was fluent in her knowledge of how to set goals accompanied by a logical implementation plan which would be aligned with measurable objectives.

In the final interview, Claire restated her assertion from the initial interview that the combination of technology skills and researching skills are vital in teaching a virtual course on the Internet. She employed both skills frequently in locating online resources to enhance her Fine Arts course. She believed that organization of standard-based materials is imperative to enhance online learning. In addition, she suggested that

teachers present materials to students in an appealing mode which encompasses auditory, visual, and verbal capacities.

Course Design

For the Fine Arts Survey course, it is Claire's intention to implement the DBAE (Disciplined Based Aesthetic Education) approach, in which history, aesthetics, creativity, and critical judgment are employed in the study of the three major aspects of the fine art: music, drama, and visual arts. Claire designed the course to meet the Louisiana state standards for the arts as well as the DBAE standards established by the J. Paul Getty Institute. The DBAE standards place viewing art in a different context by looking at the art, assessing it, producing it, integrating it, and, finally, studying its history. DBAE aligned with Blooms Taxonomy, which draws on higher-order thinking skills. The students would complete the following objectives established by the standards of the Louisiana State Department of Education:

- 1) to develop creative expression through the application of knowledge, ideas, skills, and organizational abilities
- 2) to develop aesthetic perception through the knowledge of art forms and respect for commonalties and differences
- 3) to develop historical and cultural perception
- 4) to make informed judgments about the arts by developing critical analysis skills, through both study and exposure to the arts

The course introduced a basic overview, defining the arts. The overview was presented in a slideshow format that students download. After the basic introduction, the students posted on the Discussion Board answers to questions posed about the

PowerPoint slideshow. Students began the course communicating with the teacher and with one another; soon, communication was interwoven through all components of the course.

Claire divided the online Fine Arts Survey into five modules. Each module had a theme:

- Module 1 surveyed Prehistoric Arts
- Module 2 covered African and Mediterranean Arts Exploration
- Module 3 addressed Middle Eastern and Asian Arts Exploration
- Module 4 explored European Art and
- Module 5 regarded the Arts of the Americas.

Within each module were lessons to enrich the topic discussed. These lessons required the students to complete a reading assignment, a written assignment, a discussion project, and a production activity. A reading assignment might, for example, require students to visit suggested web sites to conduct research on a particular art topic. For the written assignment, students might be required to write an analysis of certain artwork they reviewed on the Internet. The instructor might have the students e-mail her the completed assignment or post it to the Discussion Board to share with peers.

The discussion activity involved students interacting in the design of a group project to provide an improved comprehension of certain art topics. Production assignments usually required the students to submit drawings or paintings that they had designed using a graphics program. The images created by the students were usually uploaded to the Discussion Forum.

During the initial interview, Claire stated that the virtual Fine Arts Survey course sought to open a narrow window into humanistic achievement in order to foster a desire for further study of the arts. According to Claire:

Fine Arts is a required course for TOPS, so full enrollment is usually achieved. Since the course is global and research-oriented, it lends itself to the virtual environment. It allows me to take the students to Japan for a Tea Ceremony. I can take a virtual tour through the Altamirano Caves of Spain. These are all of the opportunities that online learning can provide.

My goal is to have the students realize we are going global. Computer technology has shrunk our world. Students laugh when they see other cultural rituals because they have never been exposed to it. Offering courses online provides the teacher an opportunity to introduce new cultures using technology.

I have revamped the whole fine arts survey. It was once taught through the Western Civilization perspective. I've thrown that out of the window. It is has been an incredible task. Each content has a certain style that is unique to that culture.

Finally, Claire stated that she spent much time familiarizing the students with the technology. Such activities were not initially incorporated into the course design, but were instituted after the first month to prevent the students from becoming frustrated with the technology. She found it necessary to show the students how to accomplish relatively simple tasks, such as copying and pasting items to save time and energy.

Claire ascertained that she could develop and present electronic multimedia presentations such as PowerPoint and Hyperstudio. She also expressed a need to use a variety of media and formats to communicate information and ideas effectively to address various learning styles.

Obstacles

Claire viewed the process of elimination as a possible obstacle. She was concerned about omitting important art topics that would be needed later in the course to understand a more abstract idea. She struggled with the “weeding out” process during the course-design stage. She had a difficult time deciding what materials would integrate well into an online learning environment.

Claire foresaw another obstacle in the possibility of censorship: “In my field, much needs justification, especially when a number of parents want to censor artwork.” She observed that many sites containing valuable information might be seen as a possible threat to someone who does not appreciate famous paintings.

She indicated on the Profiler that she did not feel that she had a system in place to provide assistance for those students unable to access the Fine Arts Survey course. She hoped a plan to address this might be established by the Louisiana Center for Educational Technology.

In the final interview, Claire stated that she had confronted her predicted obstacles. She indeed had trouble with censorship of material; however, students realized the ramifications of visiting web sites that were not recommended by the teachers. “As the semester progressed, students were so involved with their assignments, they had no time to get in trouble.”

Another item of concern proved to be technical problems. Technical issues continued to stifle the teaching process. Claire stated that she resorted to sending students disks with the assignments in the mail if the server was down. She remarked, “There is more than one way to handle a troubled situation.”

In addition to technical problems, she mentioned that she often felt isolated while she was designing her course and during the implementation phase. She stated in the final interview that “it would have been nice to share ideas with other teachers involved in the Louisiana Virtual Classroom Project.” Claire further advocated that more meetings should be held between the Louisiana Virtual Classroom teachers and the Department of Education Distance Coordinator so that suggestions could be offered and problems arising during the school year could be discussed.

Another concern that Claire had when she began teaching the online course was the “time lapse” issue. Initially she would post an assignment and wait for the students to respond, but she noticed that the students were not returning the assignments in a timely manner. She stated on the Discussion Board (see figure 3.6) that the best way to curtail this problem was to use a number of formats, i.e., discussion questions, virtual drop box, and e-mail, to remind the students when the assignments were due.

Teaching Strategies

Group projects were used as a strategy in the Fine Arts Survey. Questioning, observation, and analysis were great strategies for enhancement of student achievement during group discussions. Claire stated that when teaching prehistoric art, she would have her groups of students not only research the time period but also discover the materials used for art, the various pigments of color used, and the animals that inhabited the land during that era. The students would target exactly what they want to research as a group. Claire explained: “The main focus involves analogies of how we are affected as humans. We delve into the humanistic side, involving spirituality and the existing symbolism, using the group approach.”

Claire stated on the Profiler that she was adept at collaborating with other instructors via distance learning or web-based communication to develop projects. She was familiar with project development using technology that involved compiling, organizing, analyzing, and synthesizing. The students enrolled in her course would use web-based communication to collaborate, publish, and interact with peers to complete these group projects. Incorporating project-based learning into the course would be used to promote peer collaboration and interaction among the students.

A primary strategy that aided instruction through the first semester was her constant communication with the students. She continuously provided feedback to the students via the Discussion Board, virtual chat, and e-mail. Claire felt that modeling communication for the students would encourage them to practice it with their peers during group projects.

According to her final interview, Claire found two strategies highly effective during the first five months of the study: the use of group projects, which promoted collaboration between students, and communication using online tools, such as e-mail and the Blackboard Discussion Board. The group projects not only allowed students to take more active roles in the learning process, but it also permitted Claire to serve as a guide rather than as a disseminator of information. The group projects gave students a voice in the course, which proved to be a strong incentive for their personal progress.

Role of Teacher

In the initial interview, Claire commented that teaching on line was a “whole new ballgame,” and she considered herself to be a guide: “I give them the tools that they need to learn and advise them when they are confused. When they stumble, I pick

them up and take them over the roadblocks.” She had reservations about the concept of an online teacher being referred to as a “facilitator.” Her reaction was, “the word drums up an image of a robot just delivering orders. The term sounds cold and distant.”

Claire further expanded upon her ideas by stating that there should be a balance between the teacher and the student. She asserted, “I don’t hold back information. I can circumvent the knowledge and direct them on the right path. If you give students the tools that they need to accomplish the goal, they will use the tools, or research, to discover answers to questions.”

Finally, she confessed that she eventually found it necessary to become a disciplinarian with a censorship problem that occurred. After the situation was resolved, she was able to incorporate a technique to guide the students in the activities.

The Profiler survey revealed that the Fine Arts Survey online course required students to take on a more independent role in their learning. Claire felt that in the final analysis, her job was to establish an environment that proved to foster student achievement and self-discovery.

Assessment of Students’ Progress

There were a number of ways in which student progress was assessed in the Fine Arts Survey. One was to monitor the frequency with which students logged onto the course. A usage report assisted in monitoring the length of time students spent at the site.

Students were awarded points for contributions to the Discussion Board. Claire stated that “It is important that students communicate with me and other students. Group projects will foster their communication skills.” In pursuit of that goal, group

projects and PowerPoint presentation were incorporated into the assessment process. Yet another method of assessing student progress was the requirement for portfolios, which reflected the students' high-quality work throughout the year.

A rubric evaluated the students' completed project. Claire stated "It is the best method to use in art. A scale will be established at the beginning of the course; students are aware that if they accomplish certain tasks and meet the standards, they receive a grade that reflects the work they have done." The Profiler instrument showed Claire to be fluent in classroom application of technology and able to create an assessment rubric to be used in students' art projects.

According to Claire, "There were online self-check quizzes allowing me to monitor those students who lag behind." If students began to lag in their required work, Claire provided individual support, lending her personal touch to the situation: "If it was necessary, I scaled back and slowed progress to pick up the students that had fallen behind -- perhaps placing them in a group for support."

Students were graded on several levels: writing and reading assignments, participation in the class discussions and group work, class presentations using multimedia features such as audio and images, and online quizzes. Students were also completed "production assignments" requiring them to submit their drawings and paintings in coordination with the pertinent lesson topic.

Before each assignment, the students were provided a rubric stating the criteria to achieve a certain grade. The students were given 30 minutes to complete an online quiz. The quiz reflected the knowledge acquired by each student in perusing the posted notes in the course documents, visiting external links, and discussing topics with the

group. The elapsed time appeared at the bottom of the student's browser. After students submit their completed quiz, they were given immediate feedback. The students, together with the teacher, tracked their progress by this method.

Claire stated in the final interview that the method of diverse assessment worked successfully in the first semester -- all quizzes and testing were online. She remarked that she was not concerned that students would cheat, because she balanced the online exams with alternative methods of grading, like portfolios. The students' work from their portfolios was shared in the Discussion Board area in Blackboard. Those students without scanners mailed their work; Claire would scan these photos and post them for the other students.

Edith - World History

Edith has almost twenty years of experience in the areas of mathematics and social studies. She has always been active in school organizations and was willing to take on the challenge of transforming her traditional World History course into a web-based format. She felt that this experience would offer students from various schools an opportunity to learn in a different environment. It would also permit sophomores from rural and inner-city schools to exchange ideas and learn from one another.

Fifteen sophomore students were enrolled in the online World History course. The students were from six different public and private high schools in the state. Eleven of the fifteen students were female and four were male. Edith posted the students assignments, and she corresponded with them in the afternoon during her hour dedicated to Louisiana Virtual Classroom activities.

Professional Development

Edith commented during the initial interview that the two classes proved invaluable because they allowed her to view the online learning process as a student before creating a virtual course. She stated that she “could not have created the World History course without taking the two online courses from UCLA .” Of her own volition, she took three additional online courses to expand on the knowledge she had received from the UCLA courses. These additional courses laid a foundation in course design and allowed her to view online learning through a student’s perspective.

Edith had experience with the Blackboard software from the Blackboard workshop and through the courses at UCLA. During the initial and final interviews, Edith mentioned that her single Blackboard workshop served as an aid to the technical ins and outs of the software package. Edith remarked that had the advanced features of the system been introduced to teachers before program inception, benefits would have increased.

At the face-to-face meetings, Edith expressed a need to take a class on how to evaluate her course design. She wanted to participate in an online course in which an experienced online instructor would examine her course and offer feedback in those areas needing improvement, thus aiding her in revision of the course design. She was also interested in attending workshops or inservices that focused on student assessment. She explained that the newness of online learning made it difficult for an instructor to know exactly what type of evaluation was appropriate for web-based instruction.

Skills

Edith stated, "A teacher should be familiar with the different learning styles of students, how they learn in an online course, and what can be done to accommodate their needs." Edith felt that once a teacher was aware of the various learning styles, it was necessary to communicate clearly with the students:

The teacher must be concise and brief with direct instructions. It is important that the teacher's written directions leave no questions unanswered concerning what the students' responsibilities are for each assignment. Being precise and explicit is the very important.

She also acknowledged that organization was a necessary skill for any online teacher: "The material must be presented to the students in a systematic manner and provided for access on a daily basis. Students rely on the online teacher to be organized and prepared to present lessons in a routine format."

It was also brought out initially that Edith equated organization with the promotion of reliability. She emphasized that the students did not like to deviate from a route once it was established. Edith maintained, "If you do something different, it blows the students away." Another skill that Edith mentioned dealt with communication: "It all goes back to communication. Teachers need to model good communication skills -- to have examples to follow."

Edith indicated on the Profiler instrument that she possessed technical skills, such as setting a computer system and connecting peripheral devices. She also stated that she was familiar with the configuration of the computer on a network system and could troubleshoot to correct a locked-up computer if technical problems occurred.

In our closing interview, Edith reiterated the need for teachers to have technical skills in order to teach a virtual course. "If a teacher spends the majority of her time

learning how to use the technology, the curriculum is neglected.” She also recommended that teachers have good organizational skills to go along with the technology. “File management is the key to success in a virtual course.”

In the initial and final interviews, Edith stated that she relied upon skills in communication, organization, and technology for support in offering the online World History course. She stressed that teachers who offer virtual courses must be able to structure all activities to accommodate the varied learning styles of the students. She advocated professional development instruction to enable teachers to acquire these skills.

Course Design

The World History course offered in the Louisiana Virtual Classroom emphasized geography and the human story of world history. Attention to the interaction of geography and history permitted students to understand how and why events unfolded and placed the effect of individuals in a better perspective. In each unit, the instructor incorporated the study of famous/infamous people who have shaped the history of the world. Reading, writing, critical thinking, and map skills were developed during the course by utilizing various online sources and software. The course was divided into nine units, arranged in chronological order with several overlaps of time periods. Timeliner software facilitated students’ understanding of the sequence of events. Online maps and virtual field trips provided a visual mean of relating events and locations to each other. Online students would recognize the effects of natural resources on the culture of a region. These studies were implemented as individual and group projects throughout the course. Since the human story of history was the main

focus of this course, the virtual classroom depended on and required student collaboration and interaction. Students employed discussion boards and forums to create a sense of community and to promote the exchange of ideas. Email and NetMeeting were used, along with Blackboard software, to provide communication on a regular basis.

The course centered on the textbook, but it used a number of Internet resources to supplement the units that were taught. To complete group and individual projects, the students utilize supplemental software products such as Inspiration, PowerPoint and Timeliner. Macromedia and Realplayer were also used to provide students audio and video clips that accompany information in each unit that is taught.

Each unit contained a wide range of activities, such as reading assignments taken from an assigned textbook or other online resources. In addition, students also took “Web tours” -- Internet sites designed to enhance the information in the units.

Further, students conducted extensive research to complete written reports for submission online. Individual and group projects were integrated throughout the coursework to encourage students to share ideas and work cooperatively. Participation played an important role in the World History course as well. Students exchanged ideas via e-mail and Discussion Forums.

In the initial interview with Edith, she informed me that she used a World History textbook as a base to divide the course into units. The units were taught in chronological order, based on when the events occurred in history. Edith selected topics easily supported by Internet resources. She found it difficult to eliminate certain topics, because there were many web resources correlating with the information taught.

Edith commented, "I've been thinking about what should be taught for a long time. It was not something I just arrived at quickly."

Edith selected a good textbook that had a wealth of Internet resources. The textbook listed links that demonstrated how to do interactive puzzles, and it provided web tours on topics under discussion. She remarked that a number of new textbooks make the necessary technology connection to various content areas that were taught.

The Profiler instrument revealed that Edith had the ability to develop multimedia presentations to enhance the online World History course. She was also capable of integrating a variety of media and formats to communicate information and ideas effectively to address various learning styles.

Edith explained in the final interview that she had fashioned modifications to her original course design. She had to change the method in which students presented their assignments because the "Drop Box" became disabled -- students continued to have technical difficulties with this function of Blackboard. Finally it was necessary for the assignments to be posted in the Discussion Board; students did peer evaluation based on rubrics designed by the teacher.

Obstacles

Technical problems with the Blackboard e-mail were a big concern for Edith. She felt that the e-mail in Blackboard was not a reliable e-mail system. Although it permitted the students to send a message to the instructor, it did not provide a mailbox for responses. The teacher's reply had to be sent to the students' e-mails at school. Edith found this situation to be perplexing to the students -- they were sending mail from one

place, and receiving mail in another. Edith commented on the Discussion Board (see figure 3.7) that:

It was very confusing. The students were not checking their e-mail in the correct location. To compound this problem, some districts failed to realize that they had to provide an e-mail box for their students. It [the method of e-mail] is not consistent; some kids have it either at home or at school. Access is limited for checking e-mail -- not everybody is getting my messages. E-mail is so essential for everything I do, that communication using this method has been a big problem.

Another obstacle focusing on communication was that students had difficulty explaining their problems. Edith gave an example of a student who wrote in an e-mail that one of the course documents would not download. She thereupon answered the student, asking for a more detailed account of the problem. Edith said:

I encourage them to be very detailed in their questions. Teaching them how to communicate is a challenge because our system has required minimum feedback from students. Many students don't know how to express themselves through written language. It all boils down to communication.

She mentioned that there was not a technician who was able to solve technical problems for students and teacher during the weekends and after school.

In the online courses, students were required to take a more active role in the learning process. Edith suggested that the assignments requiring students to make decisions on their own "boggled their minds." She stated that in the beginning she planned to give examples of completed projects if necessary, but she hoped that after a few assignments the students would work of their own volition. "My goal is to have them become independent thinkers." However, the situation continued to be a struggle for both teacher and students.

During the final interview, Edith stated that there proved to be obstacles. Initially, she found that there were students who would not assume an active role in the decision-making process. She addressed this problem by providing examples; the students then followed those examples and began to share additional ideas and suggestions with their peers. As the students aided one another, Edith adopted a facilitator's role.

Edith commented that the counselors for the Louisiana Center for Educational Technology should screen the students more carefully, looking at their computer experience and their schedule. She recommended that each student be assessed -- not only to find the student's prior course load before adding the virtual class, but also to determine the student's ability to work independently.

Teaching Strategies

Communication involving the Discussion Board located on the Blackboard course site was a significant strategy used. The Discussion Board provided an area for the students to expand one another's ideas by providing alternative suggestions. Every week the students were graded for their participation in the Discussion Board.

The students initiated the Timeliner software in the first unit, and the Discussion Board permitted them to teach one another how to use the software. Edith explained that they "post their questions about the software and other students respond. I'll respond if I must, but I want them to teach themselves."

Group projects provide a pivotal strategy implemented in the course. Before assigning group projects, Edith ensured that the students communicated effectively with the other students and with her. The interaction that occurred between the students

while they completed their group projects encouraged them to enhance their communication skills. All of the group activities prompted students to collaborate and to make decisions based on their knowledge of the subject. The sharing of ideas fostered an environment that endorsed student-centered learning.

On the Profiler survey, Edith planned to use a variety of strategies with which she was comfortable. She encouraged students to develop projects that enhanced higher-order thinking skills and to use the web-based communication as a vehicle for interaction with peers in their group. Peer collaboration and interaction were used extensively between the students, allowing them to problem-solve.

In her closing interview, Edith concurred with her initial belief that exemplary teaching strategies were necessary to make an online course succeed. She stressed the importance of good communication among students to encourage them to express their ideas in the Discussion Board. Communication was a vital part of the group work used throughout the course.

Role of Teacher

Edith believes that online teachers should ideally be facilitators instead of lecturers: rather than purveying information, they should lead students to knowledge.

By Edith's estimation,

In an online course, students will only read so much. I have made web tours to send them to find information; it keeps them moving and going. In World History, you have to read some information -- but the rule of thumb is, if they have to scroll down the screen very far, it's too much information to read.

Realistically, the Profiler survey indicated that students enrolled in the World History class would be required to take on a more independent role in their learning.

Assessment of Students' Progress

Assessment of a student's progression required a written evaluation. According to Edith, "Testing modifications were geared to the way I test. I had to select written evaluation, and the evaluation process is totally different from what I usually implement." She explained that after the students read and completed the activities, they had to detail the things they had learned and the conclusions they had made, and finally they had to tie everything together.

The assignments were diverse in order to prevent the students from becoming bored. In order to keep them interested and progressing, she supplied a number of varied assignments. Sample assignments might require the students to participate in a virtual web tour and create a timeline of that tour, or to answer an online practice test and then complete an interactive puzzle. After completing the assignments, the participants were required to respond to questions on the Discussion Board regarding the tasks completed.

The survey indicated that Edith was familiar with alternative forms of evaluation and was capable of creating assessment rubrics to grade students' assignments. Edith asserted, "I grade with a rubric; they know what I expect and what I look for." Students were assessed on four fronts:

- 1) Reading assignments that coordinated with each covered unit. After each reading, the student was required to respond to a question on the Discussion Board for a grade in participation.
- (2) Web tours directed the students to a list of Internet sites aligned with the World history lesson being researched

(3) Group and individual projects required the students to submit their complete work online for evaluation

(4) Exams were administered at midterm and at the end of the course.

The students completed the course under the guidance of a proctor assigned to their individual schools.

The due date for each activity was posted in the syllabus, and her policy was clearly explained:

All of the assignments must be completed on or before the deadline date. Late work is dropped one letter grade and will not be accepted more than one week after the deadline date. No exceptions are made for assignments lost in cyberspace.

She advised her students to print a hard copy of their work with a print-out date and to save it on a diskette before it was sent.

Grades were sent on an individual basis, along with progress reports. Students were encouraged to track their progress in the student grade book provided by Blackboard. The students' grades were based on the total points earned on assignments and activities, according to a 10 point scale (A=100% -90%). If students detected a discrepancy in their grade, they were urged to contact Edith via e-mail or telephone during her virtual office hours.

In the final interview, Edith's assessment procedures during the first semester appeared to be successful. In an eclectic approach, online quizzes, participation grades, and interactive activities assessed by a rubric were incorporated into the course. Progress reports were sent out regularly to keep the students informed of their grade in the course.

Blanche - Exploration and Analysis of Environmental Issues

Blanche has been on the forefront of teaching with technology since she started her educational career eighteen years ago. She envisioned web-based learning long before it became a reality for the students around the state. Blanche had worked on a number of math and science projects that were nationally known. She was especially enthusiastic about her opportunity to work with the state to develop a course for the Louisiana Virtual Classroom.

Blanche's background knowledge of the Internet allowed her to design the Exploration and Analysis of Environmental Issues to meet the needs of her twelve students, all of which were seniors enrolled only in private schools around the state. Her schedule permitted her to offer assistance to the online students in the morning.

Professional Development

Blanche appeared to have more professional development training than the other participants. Blanche stated in her initial interview that before the Louisiana Virtual Classroom evolved, she was involved with earlier online communities on the Internet, seeking a "grass-roots" effort to establish web instruction. In addition to the courses she received from UCLA and the workshop attended on Blackboard, Blanche took advantage of technical training provided by grants.

Blanche said that her professional development prepared her for teaching online even before she applied for association with the Louisiana Virtual Classroom. She recalled:

I envisioned this idea a long time ago. I started a web page for my class and taught them how to use e-mail to communicate. Competitive grants helped me to put activities on the web site for the kids to complete. In 1996, I became

involved in The Biology Place.com. It gave me the opportunity to share interactive activities on the Internet with my students.

Another way Blanche learned about online communities was through the “Tap In” project, where students and teachers alike learn through discovery. The online community encourages collaboration among teachers and students. Blanche noted, “I have had pieces of knowledge; the Louisiana Virtual Classroom has helped me to piece it all together.”

Blanche stated on the Discussion Board (see figure 3.7),

Most of what I learned came from grass-roots efforts -- working with other people around the world, and learning from them. Six years ago, when I became interested in online learning, there were not many courses. The courses that I took through UCLA this year placed me in the shoes of the students. As much as I enjoyed being teacher, it was so important to see [education] in a different light. I felt like I had gone to finishing school, with these two courses. The courses gave me time to develop a philosophy.

The Blackboard workshop was a good review for Blanche; she had used it previously in her courses through UCLA. She remarked in the final interview that the inservices gave her time to sit back, listen, and then visualize how the lesson could be used. According to Blanche, “It was a good activity to get teachers together, but I would have been more interested had they incorporated other tools like real audio and video streaming.”

Skills

Blanche indicated on the Profiler instrument that she possessed a wide array of technical skills. She was very knowledgeable in the area of networking computers and in solving computer glitches. She established a logical implementation plan complete with organized strategies to help promote student achievement.

Blanche emphasized, in the face-to-face meetings held at LCET, the importance of organizational skills in designing the course. She also stated that technical skills were necessary in order to understand the software and hardware required to teach online courses. Organization and knowledge of technology allowed her to focus on curriculum activities.

She emphasized that teachers must have computer skills; otherwise, they would spend too much time learning how to operate the software and hardware rather than focusing on the curriculum activities. She went on to say that unskilled “teachers would become frustrated if they confronted technical issues they did not understand.”

In addition to technical skills, Blanche was convinced that organization was necessary. In her experience, the students relied upon consistency and organization in the course. Blanche theorized that if she modeled being organized, the students would also learn how to structure their learning materials accordingly.

In the final interview, Blanche stated the importance of having those teaching skills necessary for an online course. She commented that the teaching style must promote facilitation skills. The “none chalk and talk” way of teaching was her explanation of facilitating instead of dictating a course.

Course Design

Exploration and Analysis of Environmental Issues was a course which provided for the integration of science, math, and technology. Students were engaged in gathering data on critical issues. The critical analysis of this data was explored through directed activities, utilizing the Internet. Other critical concepts with a direct focus on Louisiana’s environment were addressed.

The Exploration and Analysis of Environmental Issues was divided into “blocks,” different topics covered in each “block.” Within each block were group activities designed with experiments and online discussion sessions that took place in two areas: the virtual chat room and the Discussion Board in Blackboard. For the students, the covered topics ranged from individual lab reports and reading assignments in the textbook to correlated graphing exercises and Internet resources. Additionally, each block contained a portfolio assignment that included a collection of student artwork, multimedia presentations, and sample writings that enhanced the learning experience.

After Blanche established the objectives for the online course, she listed each activity to be implemented. The Louisiana content standards helped to drive the project choices. Blanche then designed a plan of action on how the activities would be completed. From that point, she transposed her brainstorming ideas onto a Web Quest. She searched for web sites on the Internet that could be incorporated into the student activities. In order to have diversified resources, she utilized those CDs that addressed environmental issues, and she made a search for more audiovisuals to support the material taught. Blanche remarked that it became “critical to offer different avenues for students to learn.” She noted that since Environmental Science is a new area of study, it was difficult to find materials of good quality to enhance the lessons.

Students were assigned different group projects to encourage collaboration. The completed projects were posted on the Discussion Board, and the students then read what the other groups had accomplished. Blanche asserted that “Students need to know

that dialogue has been turned to text; they must learn how to communicate in this manner.”

Other methods were used to encourage view shots. Blanche said, “I can’t use chalk to draw, so I give [the students] view shots.” The students and teacher used their cameras to take pictures of their familiar and varied environments, and they shared those photos with other members of the class, using the Kodak web site.

The Environmental Issues online course incorporated a variety of media and formats to communicate information and ideas effectively and to address different student learning styles. Blanche noted on the survey that she was fluent in the area of critiquing and identifying basic principles of instructional design associated with the development of multimedia and hypermedia projects. She also had the ability to present multimedia presentations that could be incorporated into the course design.

In the final interview, Blanche stated that she had redesigned portions of the course to align with the curriculum, focusing a great deal on the technology. That having been completed, she wanted to place more emphasis on the content area. Her suggestion was that there should be an orientation to introduce the students to basic computer skills. If not an orientation, a screening process should be provided to ensure that students had absorbed a basic knowledge of computers. She went on to state that most of the students did not have the ability to deal with file transfers.

Obstacles

Blanche considered student procrastination an obstacle to be avoided. As a virtual instructor, she taught them to become online learners.

They needed encouragement if they get stuck or wait to the last minute to complete a project. This is when it is necessary to build a support system

between the students and the facilitator. It is important to have a warm environment in which students feel comfortable asking for help if they lag behind.”

Another roadblock that Blanche confronted was technical problems. She expressed concern with the students unable to get the Blackboard site due to technical glitches. Students often tried to use the technical setbacks as justification for putting off completing their assignments. Blanche explained, “There might be days that we can’t get on the Internet. That’s when you use an alternative plan -- like utilizing the Environmental Science CDs.” She also stressed the importance of having students use higher-order thinking skills. Although learning through discovery was used throughout the course, Blanche stated “Adolescents usually think linear and don’t see the alternative ways of finding solutions to problems.”

Blanche’s response on the Profiler instrument showed that she had devised a system to provide assistance to students unable to access the web-based course. She considered her job to be that of a teacher, not a technician. However, she did have technical problems with the “Virtual Drop” because the students did not understand how to use it to deliver completed assignments. After numerous failed attempts to implement this component in Blackboard, she eliminated it from the course to avoid future problems.

Other technical problems included heavy traffic on the Blackboard server, usually during school hours. Those students who lacked access to the Internet after regular school hours experienced late return problems when turning in their assignments. Ultimately, Blanche wanted to make her own CD, employing PowerPoint

presentations with lectures. She felt that this could serve as an alternative solution when the students could not get on the Internet.

A lack of Real Audio was also a major concern, because Blanche felt that this forced the students into much reading and writing. She teased, "We don't want the Louisiana Virtual Classroom to be referred to as The School for the Deaf." She stated that it would have been ideal had the state provided technical assistance. In the absence of state funding, she supported the allocation of funds for technical support persons at the local level next year.

Strategies

The teaching strategies that Blanche implemented included group projects and project-based learning: both strategies encouraged higher-order thinking skills in the students. In order to collaborate online, students used Netmeeting, which was a form of "virtual chat," and the Discussion Board.

In the initial interview, Blanche stated that collaboration was a strategy used quite frequently in the online course. Students worked collaboratively to complete different group projects. According to Blanche, "Environmental Science promotes this because there are so many topics that can be investigated." They share their findings with other student groups in the class. The students utilize audio and visual materials to enhance their group learning experience.

Blanche stated on the Profiler that she was fluent in collaborating with other instructors via distance learning and in using web-based communication to provide problem solutions or to develop projects. The survey also indicated that she used project-based learning to implement higher-order skills requiring students to analyze

and synthesize information. She planned to incorporate project-based learning into the Environmental Issues course, in turn promoting peer collaboration and interaction.

Blanche noted in the final interview that all of the strategies she formerly suggested in the initial interview had been implemented. She explained that the students were “creating their own curriculum.” Lessons were derived from questions and responses that students had posted on the Discussion Board, and those lessons always included group activities intended to foster collaboration among the students.

Role of Teacher

In the initial and final interview, Blanche explained that her study of science had set the stage for her role as a facilitator. Students were able to take on more responsibility in the class, with the required student activities, upon completion, promoted self-discovery and independent learning.

According to her personal view on teaching, Blanche remarked, “I’m natural with online courses because I am not a dictator. If I were, I would have a lot of adjusting to do. I’m a facilitator, who is eager to hand over the bulk of the responsibility to the students.” She stated that she would give guidance and assistance when the students needed it, but she felt that science actually lent itself to students who make their own choices.

Blanche acknowledged a link between technology and independence. “Technology helped me to provide and facilitate in different directions. E-mail and discussion boards foster students taking ownership of their work. This, in turn, allows them to form their own opinions.” Therefore, Blanche’s online course required students

to assume a more independent role in their learning; she had stated on the survey that she would facilitate this process.

Assessment of Students' Progress

Assessment of student assignments and group projects involved using rubrics that aligned with the students' achievements. Online quizzes and quarterly exams gave Blanche the opportunity to monitor the students' progress regularly. For each unit or block, a student participant submitted an item to a personal electronic portfolio.

Students received points for activities completed on time. The points drove the assessment of students' progress on all activities. Blanche maintained, "I have points on everything -- including participation and quizzes." Each activity was valued by points, depending on its complexity. Students know before completion of the project what the activity is worth in points; rubrics were used to grade the students' portfolios.

Further, students had online tests every quarter. The students were given pretests, which were then regrouped to see if they had mastered the skills. Each block contained a number of small assignments, permitting advancement opportunities for students who did not do well on their online exams. This method gave leeway to circumstance, in case the online testing was not running smoothly due to technical problems.

Students received feedback immediately from the online quizzes and the individual assignments. Nevertheless, a measure of reading and writing was involved.

Blanche wanted to keep the assessments from burdening the students:

Hopefully, the assessment process will not put much pressure on the students who have chosen to take this course. I try to keep the difficulty level down and continue to give praise along the way for students who complete their task on time. The students form a community by creating

their own personal web pages. If they are in a community, it encourages support for those students whose assessment shows that they have weaknesses in certain areas.

In response to assessment on the Profiler instrument, Blanche indicated that she had established a well-designed data collection and analysis process that tracked progress and provided evidence of students' growth. She also used a rubric to assess student achievement. Student activities were evaluated using rubrics designed by the teacher, while projects were submitted online to the students' portfolios. The portfolios were shared with the class; this practice encouraged peer feedback.

Within each block, the course guided the students to complete certain activities, each with a given point value. The activities might include lab experiments, reading assignments, group projects, graphing projects, or research reports. Some of the activities were included in the student's portfolios. The assignments accounted for 50% of the students grade, while online quizzes represented 25% of their grade. The quizzes correlated with the assignments and information from the Environmental CD used in the course. The online assessments were timed and required students to answer questions posed in an essay format; thus, 25% of the student's grade was dedicated to quarterly exams administered online and monitored by a proctor. The students were allowed 50 minutes to complete the exams, but no Graphical Analyses were permitted to be conducted on these exams. The students had to complete the exam online, copy and save it to a disk, and finally place it in the "virtual drop box" provided by the program.

In the closing interview, Blanche stated that her methods of assessment reflected student achievement. She used diverse assessment tools to appeal to different learning

styles. To guard against technical problems that students often experienced while taking online exams, she asked the students to complete their tests in Word and then to copy and paste the information into the online exam. If the system booted the student out during the testing period, they still had the option of sending it to the instructor as an attachment. Blanche adamantly stated that she did not want the students' grades to depend on their ability to deal with the technical problems.

Survey of American Literature

Paul has been in teaching in the public school system for seven years. He had always been interested in how technology could enhance his English courses. When the applications were sent out to his school, he realized this would be a chance to unite the two areas he was most interested in -- literature and technology.

The Survey of American Literature course was offered to tenth- and eleventh-grade students. The class was made up of five students from private and public schools located in rural areas of the state. Paul expressed some disappointment in the low enrollment but was optimistic that the students in his class received individualized instruction to meet their academic needs. He offered suggestions and encouragement to the students via e-mail and through the Discussion Board during his scheduled time in the afternoon.

Professional Development

The prior professional development that Paul had received centered on integration of technology such as the INTECH (Integrating Technology into the Curriculum) Program and the Technology Mentoring Project, which assisted new

teachers designing technology rich lessons. Subsequently, he had received training from UCLA, which introduced him to online learning as a student.

Paul learned a lot from the UCLA classes; in considering the online classes, he stated in his initial interview that:

The two classes that I took from UCLA showed me the ins and outs of the virtual environment. We were able to look at this learning experience through a student's viewpoint. Rather than being the teacher, we approached it through a different viewpoint. It was really beneficial because it helped us to see what the student would be going through and how to design a rigorous course to meet their needs.

In addition, Paul had taken a number of courses in administration in order to complete his master's degree. He explained that the courses allowed him to see how important administrative support is to new projects involving technology. They also made him realize that the Louisiana Virtual Classroom would not last another year without endorsements from principals and other district-level leaders.

In the final interview, Paul stated that he wanted to take more courses in assessing students' progress in a web-based course -- more training on how to adequately assess the students' responses. He wanted to know more about how to determine whether students' grades actually reflected their knowledge and ability. He was concerned that the letter grade given to students may not accurately tell either the teacher or the students where they are in the class.

Skills

Paul mentioned during his initial interview that technical skills were pivotal in teaching courses over the Internet. Paul suggested that teachers should have technical skills that would allow them to confront whatever problems they may face as they teach online courses. He suggested that instructors learn how the different features in the

control panel work on the Blackboard, feeling that it would be extremely beneficial to know this before the web-based course was offered.

Paul gave an example of a situation: One of his students stated that the required homework had been sent, but Paul could not find it. He finally realized that he was expecting the student to send the completed assignment via e-mail, but instead the student had put it in the virtual drop box. According to Paul, "This one example demonstrated to me that communication is very important between the student and the teacher."

In the face-to-face meetings, Paul also stressed the importance of knowing both the curriculum and philosophy of virtual teaching. He felt emphatically that a philosophy of online instruction should be established before the instructor designed the course. He stated that teachers should have workable knowledge of the curriculum taught before venturing into the online environment.

Paul suggested that before teaching an online course, instructors should familiarize themselves with the different tips and techniques that can be useful in such a course. Paul established on the Profiler survey that the only technical skills he was familiar with were the setup of a computer system and knowledge of how to connect peripheral devices. He indicated that he possessed organizational skills which assisted him in designing a logical implementation plan with strategies and measurable objectives.

In his closing remarks, Paul reemphasized that technical skills were vital to an online instructor. He also stressed that an educator who chose to instruct via the

Internet must possess the same qualities as a traditional classroom teacher, i.e., ability to organize materials, knowledge of the subject area, and knowledge of the material.

Course Design

Survey of American Literature was a high school English course designed for juniors. This course focused on the four following components of language arts: literature, composition, grammar, and vocabulary. Web resources that correlated with the material taught were used throughout the course to strengthen the connection of all of the components included in the course design.

The literature component of the course examines American literary genres and periods. These periods included the Puritan Era, Revolutionary Period, Transcendentalism, Harlem Renaissance, American drama, and local color. The students read and discussed selections from these literary periods, and seven required novels were to be read during the course.

The composition component covered major areas of discourse: narrative, descriptive, persuasive, and expository. Students wrote extensively in all four of these areas throughout the course of the year. Emphasis was placed on the writing process, such as prewriting, drafting, editing, and revising.

The grammar section focused on basic parts of speech and how to use them to write in real-world situations. Typical grammar activities include a variety of sentences with errors that the students had to correct and improve. Students practiced those skills involving mechanics and usage of the English language. They were also required to edit and revise paragraphs, eliminating all errors. Grammar activities were sent to the instructor via e-mail each week.

The third component included vocabulary that focused on a practical perspective, assisting the student in improving writing skills. The vocabulary also served to broaden the student's repertoire of words for writing purposes. The vocabulary words for the week were sent in the form of a PowerPoint presentation. The PowerPoint slideshows included the vocabulary words, highlighted in each sentence. Definitions for the vocabulary words were also included on each slide. Further, the students were required to write the vocabulary words and definitions in their notebooks for future reference.

An electronic journal was used to incorporate literature, composition, grammar, and vocabulary. Students were encouraged to experiment with different writing styles. Formats such as poetry, narrative, description, expository writing, and book reviews allowed the students to branch out into different areas.

Students presented their journals to Paul to enable him to survey their work and assist them with any grammatical problems. Paul compared the design of his face-to-face American Literature course to the design of his online course. He found that the content matched and the materials were the same, but the approach proved to be different -- what once were individual projects became group projects.

The Profiler indicated that Paul was able to develop and present electronic multimedia presentations using PowerPoint. His methods allowed the students to incorporate the presentations into their daily activities in order to enhance the information that was taught.

Obstacles

Obstacles that Paul confronted involved technical problems with the server and with the Blackboard software. He noted that there was a problem with the e-mail system. There were also problems due to the server which hosted the courses being down.

He mentioned that delayed communication between the students presented problems as well. Paul often had to wait several days before receiving a response from the students. He noted that communication was a big challenge, explaining that the significant lapse that occurred between the time he posted an assignment and the time he received a response from students was difficult.

Communication is hindered because of the time frame. Sitting in front of the keyboard just waiting is tough. In a regular classroom environment, you expect immediate feedback from the students. You can actually see puzzled looks on their faces if they don't understand something discussed. It takes time to find out if students in the virtual classroom are experiencing setbacks. I'm already witnessing students falling behind because of the delayed communication. Students will have to learn how to communicate on a regular basis with me and with their peers. I want to motivate them and make them feel comfortable with the whole communication process.

Paul predicted that once the students learned how to communicate effectively, their reading and writing skills would improve. Paul explained:

In the English class everything is text-based. They will have to read it and understand it. I'm expecting that their comprehension skills will also improve greatly because they have the opportunity to gather the information and comprehend it before they move on.

In Paul's final interview, he stated that initially the students had little interest in using the communication tools offered by the Blackboard system. Paul said, "I assumed they would be motivated to participate." After nine weeks passed, Paul determined that definite measures would have to be taken.

He strongly encouraged students to communicate and told them that it was part of their participation grade: "I explained that from then on, discussion had to be part of their grade." At that point, the students began to actively take part in group discussions and continued to collaborate on a daily basis.

Teaching Strategies

Teaching strategies that Paul implemented were interaction among the students and group projects. The projects were student-driven, and they enhanced web-based instruction. He encouraged student collaboration to share ideas and provide suggestions to their peers.

Group work was a consistent strategy in the Survey of the American Literature course. Paul established in the initial interview that interaction with other members in the group would be important to online learning. Paul explained, "The students in the virtual classroom need some kind of camaraderie; the best way to do that is through groups." He planned to have the students work together on projects in order to help them learn from one another.

Communication through writing is another implementation of strategy. "It is not so important that they know the facts -- can they apply it and be able to give an explanation in a written response?"

Paul conveyed on the Profiler that he used web-based projects to promote collaboration among the students. The student projects required students to use technology that involved compiling, organizing, analyzing and synthesizing.

In the final interview, Paul stated that although he used group projects as a strategy, he had to make revisions due to the fact that there always seemed to be one

student dominating the activity. He asked the students to collaborate online and would archive their chat room discussions. Paul told the students that comments and suggestions needed to be shared by all members of the group.

Role of Teacher

When Paul was asked in the initial interview what role he planned to assume in the virtual classroom, he established that he would be a facilitator instead of a dictator. "In a virtual class the teacher can't stand up in front of a class and dispense knowledge, then require them to 'spit' back the information on a test. A teacher has to change their style of teaching." In the final interview he still felt that his role as a facilitator was one of the main reasons the web-based course was successful. Paul also stressed how important it was for teachers to learn along with the students while facilitating. He reiterated this belief by stating on the Discussion Board (see figure 3.6) that once a teacher stops learning and ceases to implement new things, the teacher becomes ineffective.

The Profiler instrument indicated that Paul designed the Survey of Literature course to promote a more active role for students in their learning process. Students assisted one another, consulting the instructor only when they could not find solutions to problems. Paul stated that he served as a facilitator, guiding students when they needed direction.

Assessment of Students' Progress

Paul advocated an eclectic approach to assess students' progress in the Survey of American Literature course. Online essay exams were used to assess students' knowledge of course material, while quizzes administered online covered the course

assignments on a weekly basis. Rubrics provided guidance to students for design of their group projects. In addition, electronic journals were incorporated to enhance students' writing ability.

When the topic of evaluation was discussed in both interviews, Paul stated that the way he assessed progress would be completely subjective:

Assessment is different in an online course -- almost everything will be an essay format. Tests take the form of a composition. I have decided to assess using the same method in my face-to-face course. I'm not so much interested in having the students recall the information as I am concerned whether they can actually apply it.

He also added that there would be vocabulary tests aligned with the novels studied.

These vocabulary tests were taken online and were timed. Paul indicated on the Profiler that he would create an assessment rubric to track students' progress.

Students were encouraged to measure their progress in the course by checking the online gradebook. The course was based on a ten-point grading scale. Students were assessed on the following items:

- 1) Vocabulary exercises were done online on a weekly basis. The words were taken from novels read.
- 2) Grammar exercises aligned with the web site *Daily Grammar*. Students received points for viewing the grammar lessons.
- 3) Reading quizzes were assigned after students completed certain chapters in the novels.
- 4) Individual and group projects were part of each literary period covered in the course. Projects made use of multimedia software, and rubrics were established to provide students with guidance and direction.

- 5) Compositions were graded using a rubric.
- 6) Journal writing was employed to assess students' writing skills.
- 7) Participation points were given for quality contributions made in the class discussions.

In addition, the quality and quantity of student participation was tracked using the statistics found in the "teacher tools" section of the BlackBoard site. Each assignment lent itself to a discussion question. To decide if the responses served as assets to the discussion topic, the instructor established a rubric.

This course was designed on a nine-week evaluation schedule. Each nine-week period, grades were averaged. At midterm, the first two nine-week periods and the midterm test were averaged together to arrive at a midterm grade. The third and fourth grading periods were combined with the final exam to achieve a final average.

In the final interview, Paul commented that the use of electronic journals seemed to be working well. He stated that he periodically asked the students to send collections from their portfolios so he could assess and direct them if necessary. The electronic portfolios showed work from various literary periods. Poems, sermons, novels, and excerpts from writings indicative of the time periods were reflected in the portfolios.

CHAPTER 5

CROSS-CASE ANALYSIS

The Internet is now causing educators, from preschool to graduate school, to re-evaluate teaching, learning, and schooling. The Internet has revolutionized the way we work and is now transforming education. Web-based instruction can free teaching and learning from the physical boundaries of classrooms and time restraints of class schedules. Traditional lectures and demonstrations can become web-based multimedia learning experiences for students.

Web-based learning has great potential in education. But to fully utilize the potential of web-based instruction we need skilled teachers who can support online delivery. As long as we realize the importance of the changing roles of the teachers in an online environment, there is a future for the use of this new form of distance education. Educators cannot teach students to be effective in tomorrow's world if they do not fully understand how to use web-based instruction.

Teaching courses online means more than just placing a syllabus on a server. It involves a lot more work and effort on the part of teacher. It means planning and spending time with details that often go overlooked in courses delivered in the typical classroom. Teachers need the knowledge and tools necessary to design and implement a web-based course. The goal of this study was to provide teachers with information that will prepare them to teach in an online environment.

In chapter four, the five individual case studies were addressed to examine characteristics that were unique to the five Louisiana Virtual Classroom teachers involved in the study. The five teachers in this study taught Algebra I, Fine Arts Survey,

World History, Exploration and Analysis of Environmental Issues, and Survey of American Literature. All participants had taught for more than five years and were chosen to simultaneously teach two sections of their particular course –one virtually and one face-to-face.

Chapter five establishes an analysis using the data from interviews, online pre-survey, SCRTEC's Profiler instrument, observations, online Discussion Board questions, and online post-survey. The analysis seeks to find commonalties that unite all five cases.

The information collected throughout the study was placed into categories according to reoccurring themes (Miles & Huberman, 1994). An analysis was made by using Miles and Huberman's (1994, p.56) technique of "differentiating and combining data retrieved based upon the reflections one made about the information that was collected." The data collected was placed into tables and graphs as a systemized way of displaying the information. Miles and Huberman (1984, p.96) stated that this format was "designed to assemble organized information in an immediately accessible, compact form, so that the analyst can see what was happening and draw justified conclusions."

After the data was organized and analyzed the following topics emerged from the data in all cases:

- Views on Professional Development**
- Essential Skills Required to be an Online Instructor**
- Teaching Modifications**
- Obstacles Confronted**
- Teaching Strategies**
- Teachers' Role in a Web-based Course**
- Assessment of Students' Progress**

Views on Professional Development

This section will discuss the types of professional development training the teachers in the study felt were necessary to teach a web-based course. The teachers requested more professional opportunities to enhance their skills as online instructors. The specific areas addressed in this section are:

- (1) Advanced multimedia tools
- (2) Converting instructional materials to an online format
- (3) Technology integration
- (4) Copyright issues
- (5) Additional online courses

Advanced Multimedia Tools

In a previous study conducted by Hurst and Bradely (1993), a group of teachers stated they needed more than a day for technology training. The teachers in Hurst and Bradely's study expressed a need to have follow-up sessions conducted throughout the year. In addition, McKay and McGrath (2000) support the need for professional development by noting that "regularly scheduled workshops build teachers' technology skills and boost their confidence levels" (p.116).

The professional development training in Blackboard provided the Louisiana Virtual Classroom teachers with an opportunity to understand the basic components of the software, but the majority of the teachers expressed in the interviews a need for follow-up workshops (see figure 5.1). Their requests were for more instruction on advanced computer features, such as insertion of real audio and video. In the initial and final interviews, participants agreed that the training on Blackboard was useful, but they

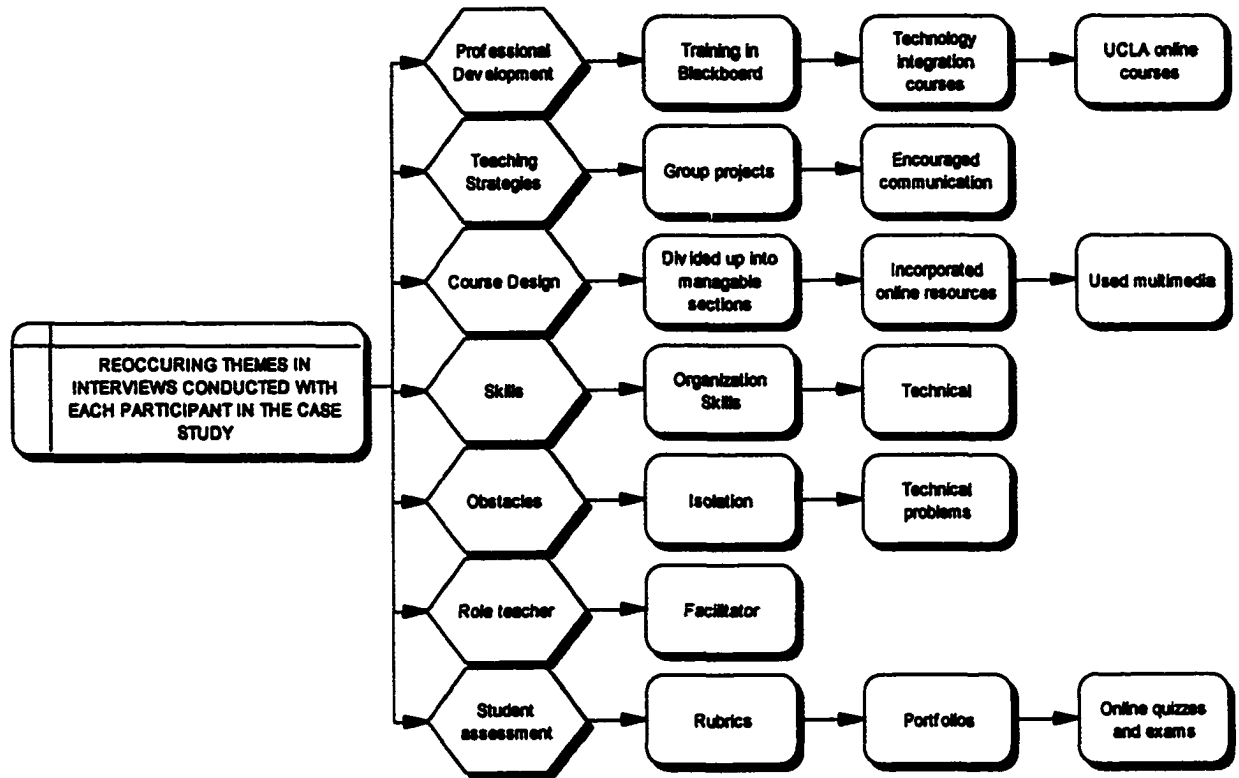


Figure 5.1: Reoccurring Themes in Interviews

wanted continued and effective training on the software, in order to learn how to incorporate Real Audio and video into their courses. Blanche stated in the interview held in December that she wanted to provide the students with more multimedia. She stated that she wanted the students in her Environmental Issues online course to experience more interactive ways of learning. Claire concurred with Blanche in regards to having more professional development training in integrating video and sound clips into her Fine Arts online course. Claire stated that she could see so much potential in learning how to use more advanced multimedia tools to enhance her course. This same request resurfaced in the feedback posted on the Discussion Board and on the post-survey results. The teachers reported that the UCLA courses were beneficial because

the courses placed each teacher in the role of a student rather than that of a teacher. This helped the teachers realize some of the difficulties that the students might encounter. In addition, all of the Louisiana Virtual Classroom teachers previously had completed technology integration courses, and they felt that these courses added to their knowledge of curriculum-enrichment with computers.

Converting Instructional Materials to an Online Format

On the pre-survey conducted online, the LVC teachers stated that the two pivotal areas in which they would like to receive more training were 1) converting their traditional methods to an online environment and 2) incorporating multimedia tools into their courses. On the pre-survey (see Appendix J), the teachers indicated that they wanted more training in the conversion of traditional methods of pedagogy to online course methods. In support of this issue, Moore and Kearsley (1996) insist that teachers learn how to convert their existing programs to a distance education format in order to provide learning opportunities to students who are unable to receive face-to-face instruction.

The data from the Profiler instrument revealed that the LVC teachers were not confident in their ability to use a variety of media and formats to communicate information and ideas. The teachers were interested in receiving professional development that demonstrated to them how to incorporate multimedia tools into their online courses. Of the group, only one teacher, Edith, stated that she wanted more workshops on locating resources on the Internet. These answers seem to indicate that the teachers did not feel that they had been given satisfactory professional development in this area. Blanche and Claire expressed their concerns about this in the meetings held at the Louisiana Center for Educational Technology. As a result, the Distance Educator

Coordinator arranged for more professional development sessions to address the need for additional training on the use of advance multimedia tools.

The Profiler results indicated that participants felt deficient in the area of either critiquing or identifying basic principles of instructional design associated with the development of multimedia and hypermedia projects (see Appendix M). This belief was reaffirmed during interviews, when the Paul and Jeanne stated that they wished to receive more professional development on instructional design of virtual courses.

The teachers also advocated follow-up workshops on the Blackboard software, which was employed in the design of their courses. Claire and Paul both stated, at the meeting in October, that they wanted to learn how to integrate the advanced features of video and Real Audio in order to further provide multimedia opportunities to the students.

Technology Integration

All of the participants stated in the interviews that they were familiar with professional development on technology integration. They had received prior instruction, either through university courses or through grants that provided training as a component. During the interviews, Edith, Paul, and Blanche expressed the importance in having a grasp on comprehension of the technology integration process before offering a web-based course. Blanche went on to state that online instructors have to focus on enriching their academic content with “state of the art” technology. According to Rakes (1999), teachers need to be involved in training that moves beyond basic technology skills. He recommended that professional development include ways

in which teachers can integrate advanced technologies into their time-honored curriculums.

Results from the post-survey (see Appendix L) indicated that the teachers still wanted to be involved in additional professional development opportunities that addressed topics related to their content areas. Edith urged that there be additional training on locating and utilizing online resources to enhance their web-based courses. Paul and Jeanne also indicated that they wanted to participate in additional training so that they could integrate content-specific online resources into their courses more proficiently.

Copyright Issues

The teachers were concerned about their lack of knowledge regarding copyright issues pertaining to online learning. The participants were unable to describe the procedures for obtaining permission to use copyright materials; this issue was revisited in the Louisiana Virtual Classroom meetings. Jeanne stated in the face-to-face meetings and in the interviews that she wanted training on acceptable-use issues as well as copyright issues that surfaced during the semester.

Questions concerning scanning of materials from textbooks were discussed at the LCET meetings. The teachers were uncertain as to what laws existed -- if any -- that pertained to scanning material into the content of their online courses for students to use. The teachers required additional information on copyright boundaries when converting images and text from reference source into a digital format. Edith and Blanche both stated that they had scanned maps, charts, illustrations, and graphs from various books; although they wished to post these resources in their courses, they were

still unclear about copyright issues. They had been given no training on the legal restraints tied to scanning materials and placing them into Blackboard for the students.

Paul expressed a desire for professional development on copyrights as related to his Survey of Literature online course. He stated that he needed direction on what materials were considered legally acceptable to post in his course. According to Cyr (1997), it is imperative that teachers acquire rights to use specific resources in a web-based course. Grenier-Winterh (1999) agreed with this and stated that educators need to familiarize themselves with laws governing copyrights at federal, state and local levels. Loeding & Wynn (1999) support this idea by suggesting that teachers must keep both copyright laws and intellectual property in mind while they are designing their courses.

Blanche suggested that the Distance Education Coordinator contact the publisher of their textbooks, Prentice-Hall, for more information. Jeanne requested that a guest speaker with expertise in copyright laws be present at the next face to face meeting. The Distance Education Coordinator agreed that the matter would be addressed in the spring.

Additional Online Courses

During both meetings, the teachers requested additional opportunities to take online courses to further assist them in developing their course for next year. The teachers noted on the pre-survey that they had received previous training in web-based instruction covering spans of five to fifty hours; the training prepared them for designing their online courses. Paul, Edith, Claire, and Jeanne had been involved in distance education for the last three years. Blanche stated that she had been active in the distance education program for more than three years.

The teachers reflected upon their experience with the UCLA online courses during the interviews. In particular, the teachers valued the opportunity the online courses had provided in placing them in the position of student and in affording them a view of online learning through a different perspective. Paul and Blanche both mentioned in the interviews, and also in the group meetings, that their experience helped them to establish both a philosophy and a foundation for the courses they developed.

Essential Skills Required to be an Online Instructor

In this section essential skills for teaching online courses will be addressed. With regard to skills that teachers must possess in order to teach a virtual course, two main topics reoccurred in all the data:

(1) Organizational skills

(2) Technical skills

Organizational Skills

In the initial interview, as well as in all exiting interviews, the teachers stressed the importance of organization (see figure 5.1). Jeanne and Paul both noticed that the students felt at ease with the online learning environment when the materials were systematically organized. Jeanne also expressed that it was necessary for a teacher not only to expect but also to model good organizational skills to the students. Harrison and Bergen (2000) concur with the teachers' collective opinion and state that in reality, teaching in an online format requires teachers to be more organized than in a regular classroom environment. In turn, the students are then able to post their materials and assignments online in an orderly fashion for the teachers to assess. Pitt and Clark

(1997) reiterated that online educators must be organized in order to address the different learning styles of those students who participate in distance education courses.

Technical Skills

The teachers in this study also indicated that prior technical skills are extremely important when teaching a virtual course. Although the participants possessed technical skills as teachers, they felt they should not be responsible for any internal server problems and online glitches that intermittently prevented students and teachers from working on the course.

Also in regard to technical skills, the participants indicated on the Profiler instrument a prior knowledge of how to set up a computer system and connect peripheral devices (see Appendix M); Edith, Paul and Claire had learned these basic technical skills when they were first introduced to technology. However, even though the teachers knew how to correct a locked-up computer, they could not configure a computer to connect with network or troubleshoot connection problems in actual practice. In the interviews, Blanche and Edith mentioned that if a teacher must spend the majority of time learning necessary technology, the curriculum would not be developed to its fullest capacity. This notion is supported by Wang (2000), who found that before teachers can move on to the integration stage of technology, they must first possess basic computer skills.

In the LVC meetings, the teachers expressed a need for additional workshops to increase their technical abilities. Although the teachers had responded on the online pre-survey that they had the ability to set up a computer system and connect peripheral devices, they found their experiences to be more demanding of their technical expertise than they had expected. On the post-survey, the teachers concluded that the main

reason more teachers do not care to teach web-based instruction is lack of technology skills and fear of technical problems. Jeanne and Paul both indicated that they wanted to take more “hands on” courses that demonstrate how to resolve technical problems associated with teaching online courses. Vojteck and Vojteck (2000) reiterate this idea by stating that teachers need to “bridge the gap between how to use computer applications and how to use the technology to enhance teaching and learning” (p.61).

The participants indicated on the post-survey (see Appendix L) that lack of technology skills was the principal reason why teachers would not offer online courses. Claire suggested that fear of technical problems could prevent teacher participation in programs like the Louisiana Virtual Classroom project. Blanche agreed with Claire and stated that basic computer skills such as transferring files, posting assignments, sending e-mail, and locating Internet resources should be prerequisites to teaching a web-based course.

Teaching Modifications

Certain teaching modifications were made to accommodate the students in the web-based courses. The teachers in the study shared how they transferred their materials to an online format. The specific issues that will be addressed in this section are:

- (1) Structure of courses
- (2) Resources
- (3) Time

Structure of Courses

To manage instructional materials that were converted to an online format, the teachers divided up the course into blocks, units, modules, or components. This method prevented the students from becoming overwhelmed with all the online materials. Jeanne and Edith both felt that organizing their materials into units allowed the students to navigate through the online courses with ease. Blanche opted to use the block method to organize her online materials. Claire chose to use learning modules to present her online activities to her students. Paul indicated that he structured his online course into components to meet the needs of the online learners. On the post-survey, the teachers strongly advised that during the design stage the course should be divided into manageable components.

Within each section, a theme or a specific topic was addressed; each section contained activities designed to coordinate with the corresponding topic. Online resources were included with the activities and assisted students in researching the issues in point. Several activities contained multimedia PowerPoint slides, which assisted the students in grasping certain concepts that were introduced.

In the interviews, Jeanne and Edith explained that the students were familiar with materials being presented as chapters in a traditional classroom, and the students' familiarity with chapters was therefore mirrored in the separation of online classroom material into units. This format helped teachers organize and manage materials as they made the transition from traditional to an online format. On the post-survey, the teachers concluded that the best way to design a course was to divide the material up into manageable components, such as units or blocks.

In the meetings held in August and October at the Louisiana Center for Educational Technology, Paul, Claire, and Jeanne expressed their struggles with setting up their course design. Blanche and Edith stated that they already had a preconceived idea of their courses before they entered the design stage. Paul, during the meeting in August, also addressed ways to evaluate the course design. He requested more professional development in this area. During the October 19 meeting, the Director of Distance Education encouraged the teachers to use the Southern Regional Education Board (SREB) evaluation instrument (see Appendix G); this permitted them to critique their course design for possible revision. The teachers discussed potential changes to their courses that would benefit the students. Jeanne and Claire suggested that if more guidance had been given, the courses would have been better designed to meet the needs of the students.

An article listed as one of the external links (see figure 3.5) addressed how to evaluate the design of a web-based course (see Appendix E). A question regarding how teachers dealt with evaluating the effectiveness of a web-based course was posted on the Discussion Board. The responses on this discussion question clearly demonstrated that the teachers agreed that for a web-based course to be effective, there must be diversity in the materials. Claire expressed the importance of presenting different formats to the students. Blanche and Paul concurred in their responses: "Students need to be exposed to different types of media." Claire, Edith, and Jeanne also agreed that virtual courses should include both synchronous and asynchronous communication in order to establish an interaction that accommodates all learning styles.

Resources

Jeanne was the only instructor who did not use a textbook for the course.

Although the other teachers used a content-driven text only as a supplement when the Blackboard site was inaccessible, Jeanne acknowledged in her final interview that she had adopted a textbook, due to concerned parents who wanted a teaching backup plan in place, should the system go down.

In the interviews, Edith, Paul, Blanche, and Claire stated that they had revamped their traditional lessons to mesh with online resources that enhanced the course activities. The web sites that they incorporated into their courses were content-specific and grade-level appropriate. All of the teachers reported that they used available technology resources to provide the students with diverse learning experiences. This supported by the work of McCormack & Jones (1998), who found online instruction was more meaningful when a variety of technology resources were used.

In addition to incorporating educationally sound web sites, Paul, Blanche, and Claire stated in the interviews and in the Profiler instrument that they had developed multimedia presentations to enhance their traditional teaching methods. Using multimedia required students to give feedback on their learning experience. In turn, the students also created multimedia presentations, focusing on specific topics. The teachers reported that as a result of being involved, the students appeared to retain the information. This is supported by research conducted by Knowles (1991), who believed that online instruction must be interactive in order to keep students engaged in the learning process.

During the course development stage, the teachers disagreed, on the pre-survey, on which single component would be hardest to convert into web-based instruction (see Appendix J). Although Jeanne and Edith stated that teaching resources were most difficult, Blanche indicated that quizzes/tests to be their choice of hardest materials to convert, Claire selected assignments, and a finally Paul stated that the most difficult component to convert into web instruction had proved to be the class lectures.

Data collected from the Profiler instrument revealed that Jeanne and Edith were familiar with multimedia, but they did not feel that they were able to incorporate a variety of media and formats to communicate information and ideas effectively while addressing various learning styles (see Appendices M and N). The lack of participant confidence in media communication may reflect a real need for prior professional development training in the areas of Real Audio, video conferencing, and online multimedia production. At the onset of the program, the teachers as a group did not feel confident in their ability to incorporate sound and video into their courses; they expressed a desire to receive training in multimedia.

An Issue of Time

In the interviews, Paul and Claire commented that it was necessary to eliminate a portion of their traditional teaching material, because the time lapse between the assignment distribution and assignment return was far too lengthy. Often, several days passed before the assignments were returned from students. They felt that the students needed to become familiar with the new form of communication between teacher and students. Edith, Paul, and Claire stated that they reduced the number of assignments that they gave to the students due to the lack of time.

This problematic situation was addressed by the teachers on the Discussion Board. The article published by the Department of Education on the Distance Learning Resource Network web site (see Appendix E) dealt with transferring instruction from face-to-face to online instructions. The article discussed obstacles that may be confronted when teachers make the transition to web-based instruction. Paul and Claire responded to the article by stating that some students waited too long to turn in their assignments. This same barrier was reiterated in the interviews with the Claire and Paul during the final interviews. They stated that in the beginning of the online courses the students took their time in completing the assignments. Claire discovered the best way to get students motivated to respond to their request in a timely manner was to enforce strict timelines on all student assignments.

Edith struggled with ways to acclimate the students to the new way of learning that required students to take on more responsibility. The students had problems in the beginning adjusting to the online learning format. As a result of this learning curve, the students turned in assignments late or never sent them to the teachers. As the semester progressed, Claire and Edith both stated that the majority of the students' work was being submitted on time. The students became more familiar with the online course, and as a result the assignments were being submitted on time or before the deadline dates.

The teachers agreed that an orientation should have been conducted with the entire group of teachers, school contact people, and students involved in online learning. This orientation would ensure that all participants involved in the LVC project comprehended the measure of commitment involved in taking an online course and the importance of turning in assignments in a timely manner. Edith stated that the contact

person needed to get more involved in the project. She went on to say that the students really did not even know who their contact person was at their schools. An extensive orientation would also have introduced the students to their contact person before the online course began. The orientation could have been done using the compressed video sites that are established around the state.

Obstacles Confronted

In this section obstacles that were confronted by the teachers in the study will be addressed. The teachers expressed concerns with certain problems that continued to reoccur throughout the study. The obstacles were:

- (1) Technical problems
- (2) Lack of support and sense of isolation

Technical Problems

Technical problems were discussed at length in both meetings because participants had expected technical problems to be resolved before the onset of the courses. In August, the Edith and Blanche both remarked that the e-mail was not working at the Blackboard site; in October the Blackboard e-mail still was not working, so the teachers opted to use the students' personal e-mail addresses to send information. Students also experienced frequent technical problems while taking online quizzes. To remedy this situation, Blanche and Claire demonstrated to the other teachers how to reset quizzes. Jeanne stated that the chat rooms tended to freeze most of the time; therefore Blanche suggested that alternative forms of communication be available for the students, such as Netmeeting or Tapped In.

On the pre-survey, the teachers predicted that technical problems would occur during the implementation stage. They indicated on the Profiler instrument that a system was not in place to provide assistance if students were unable to access the web-based courses (see Appendix M). This proved to be an obstacle to all those involved in the study. No full-time technician was available on-staff at the Louisiana Center for Educational Technology to provide technical assistance.

Research conducted by Grenier-Winterh (1999) indicates that technical issues for an online course need to be addressed before the implementation stage. The teachers informed the researcher that often the Blackboard server malfunctioned -- either at night when they were trying to post assignments or on the weekends when the students attempted to complete assigned activities. Claire stated that she tried to work on her course during the weekend and she could not get to her online course due to server problems. Jeanne also worked on her course after school and experienced the same technical problems. The Louisiana Virtual Classroom teachers often were frustrated with the situation -- unable to assist students with the problems while the server was down. The teachers also were unable to work on their courses while the server was down.

Blanche and Claire requested to have space on another server, other than Blackboard. They wanted a place to "house" their files where they could have easy access to them no matter what technical difficulties occurred with Blackboard. The Internet traffic on the Blackboard site was busy during the peak hours of 12:00 noon to 3:00 p.m. The teachers experienced problems with the Blackboard server and were unable to post their materials to their course sites during the peak hours.

On the post-survey (see Appendix L), the teachers suggested that a feasible solution to ongoing technical problems would be to integrate an Application Server Provider (ASP) like Learning Station.com, which is a program that would be able to “house” all of the courses while providing technical assistance 24 hours a day, seven days a week. Both students and teachers became frustrated when they did not receive the technical support they needed. This notion is supported by Owston (1997), who stated that online educational programs are effective only if they provided ample support to the participants.

Edith and Claire further noted that a number of students enrolled in the courses were working on computers that lacked the necessary software for completion of assignments. Having access to an Application Service Provider would have allowed the students and teachers to use software without downloading it to their personal computer; software would have run from the ASP server without requiring the installation of the program. The Application Service Provider also would have provided students and teachers with an e-mail software system allowing them to send and receive mail from any location.

On the Profiler instrument, Paul, Edith, Jeanne, and Claire indicated that they lacked certain technical skills that related to networking and troubleshooting Internet connection problems. The teachers refused responsibility for any server problems that prevented the students from connecting to the Blackboard site. In such cases, they expected the Louisiana Center for Educational Technology to provide necessary support in technical problems.

Lack of Support and Sense of Isolation

Also mentioned in the interviews and in the meetings was the lack of support for the Louisiana Virtual Classroom program. Claire and Paul stated that they did not think their principals fully understood the impact of the program. It was also noted in the meeting in October that a number of the courses had only 14 or 15 students enrolled. The maximum capacity predicted was 20. The teachers attributed the low enrollment to lack of knowledge of virtual learning on the part of the students and parents.

Communication was a major topic of concern for the teachers at the meetings. They felt that more communication should have been established between the Louisiana Virtual Classroom teachers, the contact people located at each school, and the Louisiana Center for Educational Technology staff members. The teachers also felt isolated during the design and implementation stage of their courses. Jeanne, Blanche, and Claire indicated that additional meetings would have been beneficial to discuss difficulties being experienced or to seek added support from the Louisiana Center for Educational Technology. The LVC teachers also felt rushed with timelines, recognizing that they had inadequate time to prepare. The teachers as a group believed that improved communication between the Louisiana Center for Educational Technology and the LVC teachers would have been beneficial, and that an online discussion forum, for example, should have been established at the onset of the program. Further, a forum should have been established to allow teachers to share ideas and possible solutions to problems that may arise. It was only until the teachers met face-to-face in October that they requested that such a forum be established. After the meeting, an online forum was set up that allowed the teachers to meet online to discuss problems and share ideas.

More emphasis should have been directed toward informing principals about teacher expectation before the LVC program began. For example, it might have been helpful to require principals and staff members who serve as contact personnel to attend an orientation explaining their role in the program.

Students also should have gone through a more extensive orientation. Most of them were unaware of the contact person at their particular schools. There seemed to be a lack of coordinated communication between the LVC teachers, the school contact people, and the students. The gap in communication varied in each school, depending on the individual contact person. It was suggested that a Compressed Video meeting be set up with all LVC contact people and the LVC teachers, in order to address difficulties inherent in the communication.

The need for The Louisiana Center for Education to distribute information to the member schools for next year became evident. The dissemination of information could be accomplished at local conferences and district level meetings involving parents. In addition, the necessary information could be posted to the Department of Education web site. Students, parents, and teachers should be made aware of the availability of these innovative educational opportunities.

Lack of support and collaboration contributed to the teachers' feelings of being isolated and alone. They requested that additional time be allocated to the Distance Education Coordinator, to permit that person to work with the LVC teachers as a cohort. According to Knee and Ridge (2000), when teachers establish cohorts, they in fact "form a unique bond as they move through a new program, providing encouragement and support to all members involved" (p.24). Originally, the Distance Education

Coordinator and teacher participants were to meet monthly; however, the school district administrators would not permit release time to the group to attend these meetings. The teachers indicated that they would have benefited greatly from the meetings, especially during the design stage of the program.

Teaching Strategies

In this section, information relating to the strategies that the teachers in the study used will be discussed. The teachers integrated these strategies in all components of the their online courses. The specific strategies implemented were:

- (1) Collaboration
- (2) Communication

Collaboration

In the initial interviews, Blanche, Claire, and Jeanne stated that they would use group projects as a strategy to encourage students to learn collaboratively. Edith and Paul stated that they would start using collaborative learning groups in October after they students familiarized themselves with the new learning environment. All of the teachers stated in the final interviews that group projects proved invaluable, in that they permitted students to work collaboratively to problem-solve in order to create end products, thus reinforcing higher-order thinking skills. This is supported by Trentin (2000) who argued that group projects encourage students to collaborate in order to learn from one another.

On the pre-survey, the teachers encouraged strong collaboration between peers and the teacher. Blanche and Claire both stated that the online environment fostered group work through the use of e-mail, live chat, and the Discussion Board. Grenier-Winther (1999) concurred with this idea by stating that students need to use online

learning to establish a support system built on interaction. On the Profiler instrument, the teachers indicated that they promoted collaboration and interaction between students in the online course.

The article "Issues in Distance Learning" was posted on the external links section (see figure 3.5 and Appendix E) on the Blackboard site (see figure 3.2); it addressed what methods and strategies were used in distance education courses. Jeanne, Claire, and Blanche responded on the Discussion Board by explaining that they used project-based learning and cooperative group projects to assist them in assessing whether students were actually achieving the goals established for the course.

Claire stressed the importance of teamwork between the students as well: peer feedback and review of student work were considered an asset to the online courses. According to Berge (1999), when students share their ideas via group work with their peers, they are able to comprehend more fully what they are learning. The teachers indicated on the post-survey that they used student activities centered on collaborative learning, which encouraged communication.

Communication

Communication was found to be another valuable strategy -- an assessment constantly reiterated throughout the interviews. The LVC teachers encouraged students to send e-mail, use the Discussion Board, and participate in virtual chat in order to exchange ideas with their peers and with their teachers.

In the initial and exiting interviews conducted with the LVC participants, the teachers declared that communication was yet another strategy used to support the students throughout the semester. This suggested strategy is supported by Hiltz and Turoff (1993), who state that students who take web-based instruction and receive

constant interaction from their instructor obtain higher grade point averages in the course. Claire also noted in meetings that students were able to communicate well because the instructors modeled good communication skills on a daily basis. The preferred form of communication that the teachers selected to use in their courses was the Discussion Board, which Blanche, Edith, and Claire indicated on the pre-survey (see Appendix J). Jeanne and Paul felt that e-mail was a better form of communication for their online courses.

According to McLellan (1999), teachers must make their “social presence” known to the students by communicating through various mediums. On the post-survey (see Appendix L), the teachers indicated that communication between the instructor and students was vital to the success of the online course. Further, on the post-survey, the teachers indicated that the Discussion Board was used most often with their students, while e-mail remained the second most used method of communication.

The pre- and post-survey responses reflected that the teachers’ various strategies promoted peer collaboration and interaction between students. The results further revealed that goals were set and accompanied by a logical implementation plan, and that measurable objectives and implemented strategies promoted change.

Blanche and Claire also stated that they collaborated with other instructors via distance learning or web-based communications to problem-solve or to develop projects. Further, they promoted student projects using technology that involved higher-order thinking skills such as compiling, organizing, analyzing, and synthesizing. In addition, Paul and Jeanne used web-based communication to collaborate, to publish, and to interact with peers, experts, and other audiences, including students.

Teachers' Role in a Web-based Course

In this section the role of the teacher will be discussed. The teachers in the study felt that they had to take on a different role in the virtual environment. The issues that will be addressed are the teacher as a:

- (1) Facilitator
- (2) Guide

Facilitator

The teachers explained their online instructor roles as somewhat different than the “traditional” teachers’ stand. Blanche and Jeanne emphatically expressed the necessity of facilitating web-based instruction. When the teachers served as facilitators in the online courses, they established an environment that promoted peer collaboration. Such an environment enabled students to learn from their peers while relying on the instructor solely for direction, and only after they had attempted to solve their problems independently.

The majority of the participants in the interviews defined the role of the teacher as a facilitator and guide. On the pre-survey, Edith, Blanche, Paul, and Jeanne indicated that they viewed their classroom role as a facilitator. Claire thought online instructors should serve in the role of guide to the students. The online instructor’s role mirrored what the teachers viewed as their strongest teaching strategies: engaging students in their own learning process while encouraging students to think critically. The teachers also considered their strongest characteristics to be their ability to enhance teaching with creative activities for the students and to encourage strong collaboration to promote student-centered learning.

Jones and Prichard (1999) promote this idea by stating that web-based instruction that is student-centered quickly replaces the teacher as the main source of learning. Other authorities such as Braun (1993) and Gooden (1996) agree: when teachers provide an environment that facilitates learning, students are expected to derive meaning from the information.

The teachers' responses on the Profiler suggested that their online courses required students to assume a more independent role in learning (see Appendix M and N). This concept was reiterated in the interviews, when Jeanne, Paul, Blanche, and Edith considered themselves to be facilitators in the courses. Claire once again stated that she was a guide rather than a facilitator -- one that directed the students through the course but did not dictate what they were to learn.

Guide Students to Independent Learning

The results from the Profiler instrument indicated that teachers require students to take on a more independent role in their learning (see Appendix M) in online courses. The teachers advocated guided practice, which allowed students to take a more active role in the course. Initially, Edith and Claire provided a number of examples to direct the students. After the course had progressed for a period of time, the students began to model good practices for their fellow classmates.

According to Batson and Bass (1996), as online courses and other forms of learning technologies emerge, the role of the teacher is also expected to transform. In the meetings that were held with the LVC teachers, much discussion focused on the importance of fostering and directing the students. Blanche and Jeanne stated that they needed to align their pedagogy to accommodate the online learners' needs. Both of the

online instructors accomplished this by relinquishing the power of authority and placing more responsibility on the students. Javid (2000) supports this idea by stating that students who learn in this manner ultimately take control of their own learning process.

The first question posted on the Discussion Board (see figure 3.4) related to an article published online by the United States Department of Education, entitled “New Roles for Educators.” The article explored the different roles of teachers in the technology age. The teachers’ responses on the Discussion Board revealed that as they took on the role of the facilitator, they were able to learn from the students. Paul and Edith revealed that technology had prompted them to search for online resources in web-based learning and techniques for teaching, and to explore new ways to present traditional material. In the final interview Paul reiterated this idea by stating that he was committed to being “life-long learner.”

Assessing Students’ Progress

The Virtual Classroom teachers emphasized that because online learning was a new medium for delivering instruction, alternative assessment measures had to be used. The teachers explained that they used:

- (1) Online quizzes and exams on a weekly/monthly basis
- (2) Rubrics to assess group projects and project-based activities
- (3) Electronic portfolios to contain student work
- (4) Individual participation in class projects
- (5) An Eclectic approach

Online Quizzes and Exams

The online quizzes and exams were created using the Blackboard assessment feature. The teachers used a combination of open-ended essay questions and multiple-choice questions. The exams and quizzes were timed. Claire and Blanche stated that when they gave exams consisting of essay questions, the students were given the questions before they went online. Blanche emphasized that students would begin typing in the answers to essay questions and would experience technical problems, thus losing all of the information they posted. Both Blanche and Claire mentioned that they did not want the students to be graded on their ability to confront technical problems during an exam. As a result of these technical problems, the teachers required the students to complete the essay questions and save them using Microsoft Word software. Then, if the students did experience problems they could copy and paste the information they saved into the online exam.

Rubrics

When the participants were asked on the pre-survey (see Appendix J) what assessment tool they considered to be the most effective in an online course, Jeanne, Edith, and Paul chose rubrics, while Blanche and Claire selected electronic portfolios. Each teacher established that they had employed rubrics to grade students' assignments throughout the semester and that the rubrics were given to the students before onset of the activities.

The responses from the Profiler instrument (see Appendix M) indicated that at the beginning of the semester, the participants felt fairly proficient in designing rubrics to grade student projects and activities. However, the survey revealed that the participants agreed that the data collection procedure for tracking student progress was

not well designed. Paul and Jeanne both felt that they knew how to construct a rubric, but they did not feel as confident in the overall assessment for the online course. These responses may have been due to the unfamiliarity of the alternative methods used to assess student achievement; such methods had not been used in their former face-to-face courses. The use of rubrics is supported by Reinhart, Anderson, and Slowinski (2000), who state that alternative forms of assessment are required for more progressive forms of education, such as web-based learning.

Electronic Portfolios

In the interviews, the teachers explained that the online course required the students to maintain an electronic portfolio containing their work. Thus, teachers were able to assess the students' progress, guiding them if they needed further assistance in a particular area. The portfolios consisted of projects that the students completed and published online. Claire and Blanche mentioned that their students' portfolios contained digitized pictures, text files, and audio clips.

The students were advised by the teachers to place their best work in the portfolios, which in turn were shared with other students. The students received feedback from their peers and were able to revise their projects based on the review process. This form of assessment is supported by Tuttle (1997), who believes that an electronic portfolio reflects student achievement and provides teachers with an effective way to monitor progress.

Class Participation

The teachers in the study stated that students received a grade for class participation. If the students contributed valuable insight into the Discussion Board questions and shared ideas with their peers, they would receive high rankings. The

ranking scale was based upon the number times the students contributed to group discussions and how often they offered assistance in collaborative projects. The teachers monitored their participation using the administrative tools available on the Blackboard course sites.

Collaborative projects reflected a collective effort by the students, but they also demonstrated individual contributions made by each member of the group. The teachers assessed each student's role in the group project and awarded points for participation in the activity. Using class participation as a form of assessment is endorsed by Trentin (2000), who believes that students in online courses need to be recognized for their ability to complete projects in a collaborative environment.

Eclectic Approach

On the post-survey, all of the teachers indicated that an eclectic approach to assessment was best in assessing student achievement in an online course (see Appendix L). They continued to use portfolio assessment and student participation as alternatives for monitoring student progress. In addition to these alternative methods, the teachers used online quizzes and exams to assess students' progress.

A question posted on the Discussion Board (see figure 3.4) addressed online assessment and different tools to use. The teachers in the study responded to the question after reading the online article entitled "An Assessment of Training Needs in the Use of Distance Education for Instruction." The article recommended the use of diverse assessment tools in web-based courses. Paul and Claire both stated that they used a number of alternative assessment measures to get an overall picture of the

students' progress. Blanche remarked that her students' work was displayed in electronic portfolios and assessed using rubrics, as one means of assessment.

The teachers also stated that they used both daily activities and responses to Discussion Board questions to track the students' progress. Jeanne and Edith mentioned that assessment was further achieved by tracking scores on various online exams and quizzes given to the students. By filtering the online gradebook, the teachers looked at specific assignments that focused on certain skills and evaluated individual scores. In turn, these scores provided valuable information to the instructors regarding the needs of the students in their particular academic settings. Paul and Blanche noted that they were also able to guide those students who did not participate in daily discussions or lagged behind in assignments. The teachers provided individual assistance to students via e-mail or by other synchronous and asynchronous methods.

CHAPTER 6

IMPLICATIONS FOR ONLINE INSTRUCTION

The findings in this case study will help to improve programs that are centered around online courses. The findings that I have reported assisted me in making recommendations for teachers, students, administrators, and online course providers. These recommendations will help prepare educators who plan to develop and implement an online course, as well as provide support to students who are considering taking a web-based course.

Implications

Teachers

Teachers are invaluable to the virtual classroom. I believe that they must be willing to prepare themselves for the challenge of teaching web-based courses. Professional development plays an important role in the preparation process. It did not surprise me that the teachers in the study requested additional professional development to assist them in revising and editing their courses. Teachers who are considering teaching online courses should realize that technology is continuously changing, and in order to keep up with the changes it is vital to continue to participate in professional development that demonstrates how to integrate the technology into the content areas. Such training opportunities can be taken via the Internet.

Educators who are interested in designing a web-based course should participate in a mentoring program that would allow them to serve as assistants to teachers who have already taught in a virtual environment. As assistants, the educators would spend a year aiding the online instructors; this would then not only strengthen the teachers in

mentoring program would prove to be a viable means of introducing new Virtual Classroom teachers to the web-based environment.

Research by McKay and McGrath (2000) supports this belief: “teachers should be exposed to examples of compelling Internet-based lessons prior to developing their own Internet-based curriculum projects” (p.120). During the year in the mentoring program, I think the assistants should also be designing their own online courses that could be offered to high school students in the fall of 2002.

Students

Students interested in taking online courses must be ready to make a commitment that involves time and effort on their part. In a virtual environment, students need to learn how to be independent learners. It is my understanding from the information provided by the LVC teachers that students need to be willing to take on a more responsibility for their course work. I would suggest that students visit an online course as a guest, to get a better understanding of how the assignments are set up and what is required on the part of the student.

I would also suggest to potential online learners to take a basic computer literacy course before enrolling in a virtual course. Students need to know how to use word processing software and be able to navigate around the Internet easily. I feel that one of the main reasons that the Louisiana Virtual Classroom teachers had to modify their instruction was that students did not know how to perform basic tasks such as sending e-mail and copying information into a document. It is easy for students to lag behind if they do not enter the online course with technology skills.

School Administrators

Often principals, school superintendents, and other administrators realize the importance of technology to the education system but are not quite sure what role they should play. Since online learning is a new form of delivering instruction, I do not think it can be effective without administrative support. Teachers and students need to know that they can have the support needed at the administrative level. District Superintendents and principals should be willing to sign a contract showing support for the program and for the teachers and students involved.

School administrators must play an active role in establishing online courses for the students in their school district. They must be willing to promote and support the teachers, students, and contact people involved in an online project. The administrators must be willing to pay stipends to teachers and contact staff for the extensive amount of time and effort that they dedicate to the online courses. Administrators must be willing to work as a team with principals and teachers to establish an online environment that encourages student achievement.

There is presently a program called Louisiana Educational Advancement and Development with Technology (LEADTech). This is a technology leadership initiative that prepares school principals and district superintendents with an in-depth understanding of the role of instructional technology as it relates to total school improvement and increased student learning. The program also introduces them to online learning by requiring that they take an online course. I believe this is an excellent opportunity for principals and other administrators to see what is really involved in taking an online course. It also allows administrators a chance to demonstrate to the

students and teachers that they are supporting online programs by educating themselves on how technology impacts education.

In addition to learning about web-based courses, principals and administrators should provide the necessary hardware and software to accommodate the needs of the students and teachers involved in web-based instruction. The principals should also be willing to provide Internet access, before or after school, to students and teachers who don't have computers at home.

Providers of Online Courses

Working with the Louisiana Virtual Classroom as an employee of the Louisiana Center for Educational Technology allowed me to value the findings of the study. I believe that the LVC project was successful, but there are some improvements that could be made for next year's program.

I think additional communication among the contact person at each school, the students, and the LVC teachers should be required. Both virtual and face-to-face meetings, together with compressed video meetings, should be conducted on a monthly basis. A mandatory orientation with all parties involved should be held in August to discuss guidelines and goals for the year, in addition to assessment procedures used to monitor student achievement.

Issues regarding grading procedures were never finalized before the meetings. The teachers stated in the initial meeting that they should have had more direction on how to conduct student assessment before they designed their courses. Institutions providing teachers and students the opportunity to participate in online courses should address issues related to assessment.

I believe that older forms of distance education, such as telelearning and classes by satellite, should be phased out; such action could permit more funding for web-based learning, which is proven to be more flexible and accommodating to both teacher and student schedules. If telelearning and satellite learning were eliminated, the Distance Education Coordinator would have additional time to focus on web-based courses.

The teachers involved in the project should definitely be given more continuous professional development to assist them in developing and implementing their courses. One particular area in which teachers should receive training would be copyright issues as they relate to online courses. Even though no specific copyright rules have been established by the Web-Base commission, the online course providers should keep teachers informed of the changes as they evolve. The only way to provide updated information is through training. I also think that the institution offering the web-based courses should allow teachers to enroll in more online professional development courses. These courses would help the teachers to refine their focus on evaluation of their created courses and incorporate more content-specific online resources to accommodate student needs.

An Application Service Provider (ASP) such as Learning Station.com, which offers software applications over the Internet for an annual fee, should be used to alleviate technical problems (O'Donovan, 2000). Through such a provider, teachers and students could access the full extent of software required for the online courses. The students would not find it necessary to download software -- they could access it from anywhere at anytime, using any type of platform. The meaningful role of an ASP is to connect desktops and servers for sharing of information, files, applications, and data

between devices and users. Further, free technical assistance is available to users 24 hours a day, seven days a week.

Louisiana should also consider joining a Virtual High School Consortium. Presently there are only three southern states that are offering high school courses over the Internet. The Southern Regional Education Board (SREB) has asked these three states, Louisiana, Florida, and Kentucky, to form a consortium to offer students the opportunity to take online courses from teachers among the several states. To further implement this action, SREB would provide teachers with support and guidance in the web-based instruction.

I also would suggest that any institution considering offering online courses should spend at least a year in a pilot stage before expanding the program. It is important to refine and revise the problems before offering more online courses. Issues surrounding technical problems as well as other logistical problems need to be resolved.

Recommendations for Establishing Online Courses

Based upon the findings from this study, the following recommendations should be considered when establishing an online course:

1. **Select Exemplary Teachers**

The selection process for online instructors must be rigorous. The teachers selected must have an excellent understanding of content in addition to possessing strong technical skills. These teachers should be highly motivated and interested in constructing a curriculum based on the needs of the students. Online teachers must make a commitment to their students. They must also be willing to devote time and effort to the online courses. In order to learn more about teaching web-based courses,

online instructors must be willing to participate in professional development opportunities.

2. Provide Professional Development

Professional development support is essential to the whole online process. Teachers need to have continuous training in issues directly related to online teaching and learning. As technology continues to change at a rapid pace, teachers must fully understand how to integrate these new technologies into their online courses. Professional development training should always be ongoing and be able to accommodate the needs of the teachers.

3. Provide Technical Support

Technical support is essential in any online program. Teachers and students involved in online instruction must be able to have access to technical assistance any time or any day. It is crucial to have some plan in place if students or teachers cannot gain access to the online courses. Teachers and students must understand the plan in order to utilize technical support fully.

4. Monitor the Online Program

In order for an online program to succeed, some type of monitoring system must be established. One person should be assigned primarily for assessing and evaluating the program. This person must ensure that students are given quality instruction and that teachers are receiving the support needed to teach an online course. The person in charge of monitoring should serve as a contact for both teachers and students if they do confront obstacles. The monitor should establish an environment that is conducive to

collaboration and communication among teachers and students. This could be done through Discussion Boards, compressed video conferences, or face-to-face meetings.

5. Select Courses that Lend Themselves to Online Delivery

Not all courses should be offered on the Internet. Some courses lend themselves more to web-based instruction than others. Certain content areas still don't have the resources on the Internet to support an online course. For example, Jeanne in the case study had a difficult time finding web sites that dealt directly with Algebra. She stated that she had concerns on whether math-related courses should be taught online. Courses in the areas of the arts and sciences appear to be suitable for the Internet because of the wealth of proven resources in those particular content areas.

Recommendations for Further Research

This study focused on teachers who were involved in the Louisiana Virtual Classroom. Based upon the findings, further research on the program as it relates to students who were enrolled in the courses should be pursued. This would include certain issues regarding how the technical problems associated with the courses impacted students' learning. It would also be beneficial to research how the students compare online learning to their traditional courses and what factors would prevent them from taking a web-based course.

Another area in which further research is needed is the administrative component. It would be useful to research how principals and superintendents support online courses in their school districts. It would also be beneficial to conduct research on how administrators perceive their role in the virtual classroom. Further research should be conducted to compare the administrators who go through the LEADTech

program to those who do not, and to relate this to the effectiveness of online learning in their school districts.

Conclusion

This study was conducted to provide insight into fundamental pedagogical transitions for those teachers interested in teaching in a virtual environment. The findings revealed issues related directly to professional development in regards to online instruction. The findings also seem to indicate the skills and strategies needed to teach online courses. A better understanding of the role of the online instructor as a facilitator was established by the research. Obstacles that were confronted by the participants in the study provided information on how to make the necessary modification to avoid problems in online courses.

The findings provided an orientation to those future educators interested in offering web-based courses. The information established a basis on which educators could develop an understanding of what was required to teach an online course. In addition, these recommendations will provide information to school administrators on how to provide support to teachers and students in their districts who are involved directly with virtual learning.

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APPENDIX A
CONSENT FORM

1. I _____ voluntarily agree to take part as a participant in a research project titled, " Learning to Teach in a Virtual Environment: A Case Study of the Louisiana Virtual Classroom Teachers," which is being conducted by Rachel Sellers as principal investigator who can be reached at (225) 763-5575 or by e-mail at rsellers@mail.doe.state.la.us . This research collected will be used in a dissertation. The supervising professor will be Dr. Janice Hinson.
2. The purpose of this research is to provide teachers who are interested in teaching web-based courses some insight into what pedagogical transitions need to occur in order to teach in a virtual environment.
3. The procedure(s) in which I voluntarily agree to take part in will require some online discussions, online surveys, and interviews that will be done at my convenience. The case study will begin in August and conclude in October.
4. I understand that there are no risks to my health and wellbeing if I agree to be a participant in this research. If at anytime I cannot continue with the study, I am aware that I can contact Rachel Sellers and discuss the situation.
5. This study will allow other teachers the opportunity to learn from the Louisiana Virtual Classroom Teachers. In return they will be able to offer effective web-based instruction to students.
6. All information in this research will be kept confidential. The data collected from the online surveys will be password protected to insure confidentiality.

I have been fully informed of the above-described procedure with its possible benefits and I give my permission for participation in the study.

Participant's signature

Participant's name (print)

Date

APPENDIX B

ONLINE PRE-SURVEY

1. What one item would you consider to cause most problems during the implementation of the online course:
☐ Lack of time to prepare materials ☐ Insufficient training opportunities
☐ Lack of materials ☐ Technical problems
2. Select one role in which you take as an online instructor teacher:
☐ Facilitator ☐ Coach ☐ Moderator ☐ Traditional educator
2. How many hours of training would you have you received in web-based instruction?
☐ 5-10 ☐ 11-30 ☐ 31-50 ☐ more than 50 hours
3. What would you consider to be the strongest teacher characteristic that you possess?
☐ Able to successfully interact with students
☐ Encourages strong collaboration among peers and teacher
☐ Promotes self-directed learning
☐ Enjoys enhancing teaching with creative activities
4. What is your preferred form of communication to use in the online course ?
☐ E-mail ☐ Live-chat ☐ Discussion board
☐ Video conferencing
5. What would you consider to be the most valuable teaching strategy to use in an online environment?
☐ Time management ☐ Organizational skills
☐ Encourage critical thinking in students ☐ Engage students in their own learning process.
6. What would you consider to be the most accurate form of assessment tool for online learning?
☐ Electronic portfolio ☐ Rubrics ☐ Group projects
☐ Online quizzes
7. What one area would you like to receive more training in?
☐ Technical training (server information, networking, etc)
☐ Converting your traditional methods to an online environment
☐ Locating resources on the Internet
☐ Incorporating multimedia tools into your courses
8. What would be the one factor that would prevent you from offering another online course?

_____ Students do not have enough opportunities to access the online materials
_____ Not enough technical assistance was offered
_____ Lack of training
_____ Not enough planning time

9. What was the most difficult component to convert to web-based instruction?

_____ Class lectures _____ Assignments _____ Quizzes or test
_____ Teaching resources

10. How long have you been involved in distance education? (This may include other forms beside web-based instruction)

_____ 0-3 years _____ 4-7 years 8-10 years 11 or more years _____

APPENDIX C

QUESTIONS ASKED DURING INTIAL INTERVIEW

- 1. What type of professional development training have you received? Inservices, college courses, or workshops. What skills did you acquire?**
- 2. Go step by step with me to explain how you designed the course you are offering. How did you transfer materials you already to an online format? Go to the online course as discussed.**
- 3. What teaching strategies will you use to implement your course.**
- 4. What do you think the role of the teacher should be in the online course? Do you think it will be easy to take on this role? Do you take on this same role when teaching the same course face-to-face?**
- 5. What teaching modifications were made to adjust to online course? What obstacles do you expect to confront as a result of these changes**
- 6. Tell me about the method in which you will assess students' progress. How do you expect to reach the students that seem to be falling behind in course work?**
- 7. What do you think the strongest aspect of this course is? What do you think needs work or adjustment?**
- 8. Greatest fear you have about offering this online course**

APPENDIX D

LETTER TO PARTICIPANTS

August 11, 2000

Dear _____,

I would like to once again thank you for participating in my case study. I transcribed the information from our interview that was conducted on August 10 and was very impressed with your responses. All of the information that you shared will be very beneficial to the study.

I am sending you this web site that will assist me in collecting more data. If you go to [http:// www.dissertation.com](http://www.dissertation.com) , and use the login name _____ and type in the word password which is _____, it will lead you to the Blackboard site. I've asked that you complete three assignments that I have posted. On assignment number two, I ask that you visit the Profiler site <http://profiler.scretec.org>. In order to take the survey, you must type in your last name and pin number which is _____. The directions are stated in the assignment.

After the assignments, I would like to conduct one more interview which will hopefully be in December when you come to LCET. I will also ask that you complete a questionnaire at the end of the study which should be in late December.

I cannot tell you how much I appreciate your support with this project. Please let me know if you have any questions regarding the study.

Thank you,
Rachel

APPENDIX E

EXTERNAL LINKS FOR DISCUSSION QUESTIONS

New Roles for Educators

(http://www.mff.org/edtech/article.taf?_function=detail&Content_uid1=290)

Teachers are changing roles to accommodate the needs of students.

Moving From Face-To-Face To Online

(<http://www.wested.org/tie/dlrm/course/unit1/session3/index.html>)

Examine the ways in which the relationship between student and teacher changes when instruction moves out of the classroom and onto the Web.

Evaluating the Effectiveness of Internet Delivered Coursework

(<http://ausweb.scu.edu.au/proceedings/vargo/paper.html>)

There is much excitement about the application of interactive instructional methods using Internet based technologies. But do these technologies really provide a pedagogically sound foundation on which to build more effective (as well as efficient) educational programs?

An Assessment of Training Needs in the Use of Distance Education for Instruction

(<http://www.cudenver.edu/~lsherry/pubs/needs/method.html>)

Identifying the greatest training needs in the utilization of distance education for instruction.

Issues in Distance Education

(<http://www.cudenver.edu/~lsherry/pubs/issues.html#methods>)

Methods and Strategies in Distance Education

APPENDIX F

DISCUSSION BOARD QUESTIONS THAT CORRELATED WITH EXTERNAL LINKS

Subject: New Roles for Educators

Message: What roles could you relate to in the article. Explain your response.

Subject: Moving From Face to Face to Online Instruction

Message: After reading the article, what are some barriers you have confronted with your online course?

Subject: Evaluating the Effectiveness of a Web-based Course

Message: Do you agree or disagree with the information, which discusses the effectiveness of Web- based technologies in supporting effective higher education programs? Justify your response.

Subject: Online Assessment

Message: How do you plan to assess students' needs? Do you use some of the assessment tools mentioned in the article?

Subject: Methods and Strategies

Message: After reading the section on methods and strategies, do you use some of the suggestions that were made? Please discuss in detail how you can transfer this knowledge to your online course.

APPENDIX G

ESSENTIAL PRINCIPLES OF QUALITY *Guidelines for Web-based Courses for Middle and High School Students*

CHECKLIST

This checklist is based on the SREB *Essential Principles of Quality* and is designed to assist in determining the quality and effectiveness of Web-based courses. It is suggested that each item is rated based on the extent to which each item meets the criteria on a 1 to 4 rating with 1 to 4 with 1 indicating that the course does not meet the criteria to 3 when the course meets the criteria.

Course: _____

Course
Provider: _____

Reviewer: _____

Date: _____

<i>Curriculum, Instruction and Student Assessment:</i>					
<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	<i>Does Not Meet Criteria</i>	<i>Barely Meets Criteria</i>	<i>Meets Criteria</i>	<i>Inadequate Information</i>
1. The course content and assessments are aligned with the state's academic standards.		1	2	3	4
2. The course engages students in learning activities that address a variety of learning styles.		1	2	3	4
3. The course provides opportunities for students to engage in abstract thinking and critical-reasoning activities.		1	2	3	4

Curriculum, Instruction and Student Assessment:

<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	<i>Does Not Meet Criteria</i>	<i>Barly Meets Criteria</i>	<i>Meets Criteria</i>	<i>Inadequate Information</i>
4. Fair, adequate and appropriate methods and procedures included in the course structure are used to assess students' mastery of content throughout the course.		1	2	3	4
5. Each course will provide appropriate teacher-to-student interaction, including timely and frequent feedback about student progress.		1	2	3	4
6. Each course will provide an opportunity for appropriate student-to-student interaction and a plan for monitoring that interaction.		1	2	3	4
7. The Web-based teacher can adapt learning activities in the course to accommodate students with disabilities.		1	2	3	4
8. Resources that enrich the course content are identified and available to students.		1	2	3	4
9. A complete course syllabus, clearly written, is available for review.		1	2	3	4
10. Issues associated with the use of copyrighted materials are addressed.		1	2	3	4

Management:

<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	<i>Does Not Meet Criteria</i>	<i>Barly Meets Criteria</i>	<i>Meets Criteria</i>	<i>Inadequate Information</i>
1. The course provider is authorized to operate by the state where the course originates or the provider is accredited by their regional accrediting agency.		1	2	3	4

Management:					
<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	Does Not Meet Criteria	Barly Meets Criteria	Meets Criteria	Inadequate Information
2. School districts or state departments of education will review a course to ensure quality before it is used.		1	2	3	4
3. The school or school district where the student is enrolled will accept the course for credit.		1	2	3	4
4. Procedures for fees and payment are established prior to student enrollment in a course.		1	2	3	4
5. Student work and personal data are secure from access by others.		1	2	3	4
6. Procedures are established to monitor students to ensure academic honesty.		1	2	3	4
7. A teacher or other educator in the school will coordinate and assist students with instructional, technical and management requirements.		1	2	3	4
8. The company or organization offering the Web-based course will provide technical and course management assistance to the course teacher and the school coordinator.		1	2	3	4
9. Necessary and relevant learning resources are available to enable students to meet the requirements of the course.		1	2	3	4
10. The course provider has identified prerequisite technology skills.		1	2	3	4
11. Technical requirements for acceptable access are established.		1	2	3	4
12. Teachers are trained to use the course and resources effectively to deliver instruction.		1	2	3	4

Management:

<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	Does Not Meet Criteria	Basically Meets Criteria	Meets Criteria	Inadequate Information
13. Teachers and students receive technical support to ensure ease of use.		1	2	3	4
14. There is a policy for recourse if the Web-based course is not delivered as described.		1	2	3	4
15. The academic calendar of the students and teacher is coordinated before the course begins.		1	2	3	4

Evaluation:

<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	Does Not Meet Criteria	Basically Meets Criteria	Meets Criteria	Inadequate Information
1. Each course is evaluated over time by the state agency or its designee.		1	2	3	4
2. Web-based courses provided by companies or other organizations should be evaluated based on a review of previous performance.		1	2	3	4
3. Newly developed courses will provide documentation that validates reliability and completeness.		1	2	3	4
4. Companies or other organizations offering previously taught Web-based courses will provide evidence of effectiveness, reliability and completeness.		1	2	3	4
5. Performance evaluation of teachers of Web-based courses is conducted at least once a year.		1	2	3	4

<i>Evaluation:</i>					
<i>To what extent does the course meet the criteria in this area?</i>	<i>Example:</i>	Does Not Meet Criteria	Barly Meets Criteria	Meets Criteria	Inadequate Information
6. Student participation and performance can be verified during and at the completion of the course by the school and state.		1	2	3	4

APPENDIX H
PROFILER SURVEY



Survey: Louisiana Virtual Classroom Teachers

Share survey results within your building? ☐

Survey Key:	
1 unable	This survey was designed to collect information on the Louisiana Virtual Classroom Teachers. The data will be used to assist future educators who plan to teach web-based courses.
2 adequate	
3 familiar	
4 fluent	

1	2	3	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. Setup computer system and connect peripheral devices
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2. Configure computer to connect with network and troubleshoot connection problems
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3. Correct a locked-up computer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4. There is a well designed data collection and analysis process that tracks progress and provides evidence for growth
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5. Collaborates with other instructors via distance learning or web-based communication to problem solve solutions or develop projects
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6. Can describe the steps to take when obtaining permission to use copyright material
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7. Can develop and present an electronic multimedia presentation such as Powerpoint or Hyperstudio
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8. Uses a variety of media and formats to communicate information and ideas effectively to address various learning styles
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9. Can critique or identify basic principles of instructional design associated with the development of multimedia and hypermedia projects
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10. Develops projects using technology that involves compiling, organizing, analyzing and synthesizing
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	11. Uses web-based communication to collaborate, publish and interact with peers, experts and other audiences

- | | | | | |
|----------------------------------|-----------------------|-----------------------|-----------------------|---|
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 12. Uses a well designed data collection and analysis process that tracks progress and provides evidence for growth |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 13. A system is in place to provide assistance if students are unable to access web-based course |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 14. Goals have been set, accompanied by a logical implementation plan, change strategies, and measurable objectives |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 15. The online course created requires students to take on a more independent role in their learning |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 16. Incorporates project based learning into the course |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 17. Can create an assessment rubric |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 18. Promotes peer collaboration and interaction |



APPENDIX I

QUESTIONS ASKED DURING FINAL INTERVIEW

- 1. Since our initial interview, have you confronted any unexpected problems? If so, how have you dealt with the situation to resolve the problem?**
- 2. Has the method of student assessment that you have selected been successful? Please explain in detail any revision you would make to fine-tune this process.**
- 3. What one teaching strategy have you used throughout these first few months that has been more beneficial than any others?**
- 4. If you were allowed to take one more professional development course to help you prepare for the second semester what would it be and why?**
- 5. Have you had to make any teaching modifications that you had not expected in the beginning of the year? What are they and how have you made the transition.**
- 6. If you were asked to assist in the selection of next year's Louisiana Virtual Classroom Teachers, what skills would you expected these applicants to possess in order to apply for the job?**
- 7. Would you teach another online course again? Explain your response in detail.**

APPENDIX J **RESPONSES TO PRE-SURVEY**



Lack of time to prepare and organize	2	40%
Lack of materials	0	0%
Technical problems	3	60%
Insufficient training opportunities	0	0%



Facilitator	4	80%
Coach	1	20%
Moderator	0	0%
Traditional Educator	0	0%



5-10	1	20%
11-30	1	20%
31-50	2	40%
more than 50 hours	1	20%



Able to successfully interact with students	0	0%
Encourages strong collaboration among peers and teacher	2	40%
Promotes self-directed learning	0	0%
Enjoys enhancing teaching with creative activities	3	60%



E-mail	2	40%
Live chat	0	0%
Discussion board	3	60%
Video conferencing	0	0%

Time management	0	0%
Organizational skills	0	0%
Encourage critical thinking in students	2	40%
Engage students in their own learning process.	3	60%

Electronic portfolio	2	40%
Rubrics	3	60%
Group projects	0	0%
Online quizzes	0	0%

Technical training (server information, networking, etc)	0	0%
Converting your traditional methods to an online environment	2	40%
Locating resources on the Internet	1	20%
Incorporating multimedia tools into your courses	2	40%

Students do not have enough opportunities to access the online materials	1	20%
Not enough technical assistance was offered	1	20%
Lack of training	0	0%
Not enough planning time	3	60%



Class lectures	1	20%
Assignments	1	20%
Quizzes or test	1	20%
Teaching resources	2	40%



0-3 years	4	80%
4-7 years	1	20%
8-10 years	0	0%
11 or more years	0	0%

Total Number of Responses = 5

APPENDIX K
ONLINE POST SURVEY

Instructions:

Please select one answer for each question. Carefully review each question before responding.

Question 1

What method should be used to prepare another group of Louisiana Virtual Classroom Teachers to teach online courses?

- ☐ Require them to take two online courses
- ☐ In order to learn more about online teaching, require them to participate in a mentoring program under the supervision of the current LVC teachers
- ☐ Require the teachers to take college courses that focus on integrating technology into various content areas
- ☐ Attend workshops that would focus on the Blackboard program

Question 2

What would you consider to be a feasible solution for the technical problems that were experienced throughout the year?

- ☐ Use a different software system other than Blackboard
- ☐ Integrate a product such as Learning Station. Com that would provide the software needed for the online courses. This system would "house" all of the courses and provide 24 hours technical assistance.
- ☐ Have a technical contact person at all schools that are involved in the project
- ☐ Provide more training to the Louisiana Virtual Classroom Teachers on how to troubleshoot technical problems

Question 3

What one tip would you think most useful when designing an online course?

- ☐ Divide materials up into manageable components such as units or blocks
- ☐ List important directions for the students in multiple sections throughout the course
- ☐ Conduct a needs assessment of the students who would be taking the course
- ☐ Include numerous opportunities for students to use multimedia

Question 4

What one teaching strategy did you use throughout the five months that you have been teaching the online course?

- ☐ Encouraged communication between instructor and students
- ☐ Incorporated multimedia into all activities
- ☐ Students were required to participate in group projects
- ☐ All student activities were centered around project based learning

Question 5

What would you consider to be the major reason why teachers do not want to get involved with web-based instruction?

- ☐ Lack of technology skills
- ☐ Too time consuming
- ☐ Not enough administrative support
- ☐ Fear of technical problems

Question 6

What would you perceive to be the next level in developing online opportunities for teachers and students in Louisiana?

- ☐ Recruit more teachers to teach web-based courses
- ☐ Require administrators at the local level to take on a more active role in the project
- ☐ Spend another year in the piloting stage to refine the program
- ☐ Join other states in forming a Virtual High School Consortium

Question 7

What would you consider to be the best method in assessing student achievement throughout the semester?

- ☐ Portfolio assessment
- ☐ Online quizzes or exams
- ☐ Student participation
- ☐ A combination of all the options listed above

Question 8

When designing an online course, what would provide the most assistance to the instructor?

- ☐ An advisory committee to provide answers to questions
- ☐ More communication among other teachers who are also involved in designing a web-based course
- ☐ Additional professional development opportunities addressing different topics related to online learning
- ☐ Receive information on the students who would be participating in the course

Question 9

What one form of online communication did you use most often during the first half of this school year?

- ☐ Virtual Chat
- ☐ Discussion Board
- ☐ E-mail
- ☐ Video Conferencing

Question 10

If you had the opportunity to attend one more workshop to prepare you for the next semester what would it be?

- ☐ Exploring the "bells and whistles" of the Blackboard system
- ☐ Integrating technology into the curriculum
- ☐ Using online resources to enhance your course
- ☐ Understanding various learning styles of students



APPENDIX L

RESPONSES TO POST SURVEY



Require them to take two online courses	1	20%
In order to learn more about online teaching, require them to participate in a mentoring program under the supervision of the current LVC teachers	4	80%
Require the teachers to take college courses that focus on integrating technology into various content areas	0	0%
Attend workshops that would focus on the Blackboard program	0	0%



Use a different software system other than Blackboard	1	20%
Integrate a product such as Learning Station. Com that would provide the software needed for the online courses. This system would "house" all of the courses and provide 24 hours technical assistance.	2	40%
Have a technical contact person at all schools that are involved in the project	2	40%
Provide more training to the Louisiana Virtual Classroom Teachers on how to troubleshoot technical problems	0	0%



Divide materials up into manageable components such as units or blocks	4	80%
List important directions for the students in multiple sections throughout the course	1	20%

Conduct a needs assessment of the students who would be taking the course	0	0%
Include numerous opportunities for students to use multimedia	0	0%

Encouraged communication between instructor and students	3	60%
Incorporated multimedia into all activities	1	20%
Students were required to participate in group projects	0	0%
All student activities were centered around project based learning	1	20%

Lack of technology skills	3	60%
Too time consuming	1	20%
Not enough administrative support	0	0%
Fear of technical problems	1	20%

Recruit more teachers to teach web-based courses	0	0%
Require administrators at the local level to take on a more active role in the project	0	0%
Spend another year in the piloting stage to refine the program	5	100%
Join other states in forming a Virtual High School Consortium	0	0%

Portfolio assessment	0	0%
Online quizzes or exams	0	0%
Student participation	0	0%
A combination of all the options listed above	5	100%

An advisory committee to provide answers to questions	1	20%
More communication among other teachers who are also involved in designing a web-based course	1	20%
Additional professional development opportunities addressing different topics related to online learning	2	40%
Receive information on the students who would be participating in the course	1	20%

Virtual Chat	0	0%
Discussion Board	4	80%
E-mail	1	20%
Video Conferencing	0	0%

Exploring the "bells and whistles" of the Blackboard system	2	40%
Integrating technology into the curriculum	0	0%
Using online resources to enhance your course	3	60%
Understanding various learning styles of students	0	0%
Total Number of Responses = 5		

APPENDIX M

PROFILER SURVEY: LOUISIANA VIRTUAL CLASSROOM TEACHERS

Results for survey have a possible range of 0 to 3

Number	Text	Average Response	Area
17	Can create an assessment rubric	2.6	Assessment
18	Promotes peer collaboration and interaction	2.6	Strategies Used
7	Can develop and present an electronic multimedia presentation such as Powerpoint or Hyperstudio	2.4	Skills
14	Goals have been set, accompanied by a logical implementation plan, change strategies, and measurable objectives	2.4	Strategies Used
15	The online course created requires students to take on a more independent role in their learning	2.4	Teacher's Role
1	Setup computer system and connect peripheral devices	2.2	Skills
5	Collaborates with other instructors via distance learning or web-based communication to problem solve solutions or develop projects	2.2	Strategies
10	Develops projects using technology that involves compiling, organizing, analyzing and synthesizing	2.2	Strategies Used
11	Uses web-based communication to collaborate, publish and interact with peers, experts and other audiences	2	Strategies Used
16	Incorporates project based learning into the course	2	Strategies Used
3	Correct a locked-up computer	2	Skills
8	Uses a variety of media and formats to communicate information and ideas effectively to address various learning styles	1.8	Strategies Used
9	Can critique or identify basic principles of instructional design associated with the development of multimedia and hypermedia projects	1.8	Course Design
6	Can describe the steps to take when obtaining permission to use copyright material	1.6	Professional Development
2	Configure computer to connect with network and troubleshoot connection problems	1.2	Skills
12	Uses a well designed data collection and analysis process that tracks progress and provides evidence for growth	1	Assessment
4	There is a well designed data collection and analysis process that tracks progress and provides evidence for growth	1	Assessment
13	A system is in place to provide assistance if students are unable to access web-based course	1	Obstacles

APPENDIX N

INDIVIDUAL RESPONSES TO PROFILER INSTRUMENT

Profiler Objective	Participant(s) Contributing to the Profiler Instrument/Task	Participant(s) familiar With the Skill/Task
1. Setup computer system and connect peripheral devices	✓ Blanche	✓ Paul ✓ Claire ✓ Edith ✓ Jeanne
2. Configure computer to connect with network and troubleshoot connection problems		✓ Claire ✓ Edith ✓ Blanche
3. Correct a locked-up computer	✓ Blanche	✓ Claire ✓ Edith ✓ Jeanne
4. There is a well designed data collection and analysis process that tracks progress and provides evidence for growth	✓ Blanche	
5. Collaborates with other instructors via distance learning or web-based communication to problem solve solutions or develop projects	✓ Blanche ✓ Claire	✓ Paul ✓ Edith
6. Can describe the steps to take when obtaining permission to use copyright material		✓ Claire ✓ Edith ✓ Blanche
7. Can develop and present an electronic multimedia presentation such as Powerpoint or Hyperstudio	✓ Paul ✓ Blanche	✓ Claire ✓ Edith ✓ Jeanne
8. Uses a variety of media and formats to communicate information and ideas effectively to address various learning styles	✓ Blanche	✓ Claire ✓ Edith
9. Can critique or identify basic principles of instructional design associated with the development of multimedia and hypermedia projects	✓ Blanche	✓ Claire ✓ Edith
10. Develops projects using technology that involves compiling, organizing, analyzing and synthesizing	✓ Blanche ✓ Paul	✓ Claire ✓ Edith
11. Uses web-based communication to collaborate, publish and interact with peers, experts and other audiences	✓ Blanche	✓ Paul ✓ Edith ✓ Jeanne

12. Uses a well designed data collection and analysis process that tracks progress and provides evidence for growth		✓ Blanche ✓ Edith
13. A system is in place to provide assistance if students are unable to access web-based course	✓ Blanche	
14. Goals have been set, accompanied by a logical implementation plan, change strategies, and measurable objectives	✓ Blanche ✓ Paul ✓ Claire	✓ Jeanne
15. The online course created requires students to take on a more independent role in their learning	✓ Blanche ✓ Paul	✓ Jeanne ✓ Edith ✓ Claire
16. Incorporates project based learning into the course	✓ Blanche ✓ Paul	✓ Jeanne
17. Can create an assessment rubric	✓ Blanche ✓ Paul ✓ Claire	✓ Edith ✓ Jeanne
18. Promotes peer collaboration and interaction	✓ Blanche ✓ Paul ✓ Claire	✓ Edith ✓ Jeanne

VITA

Rachel Sellers was one of nine children born to Harold and Jeanne Sellers of Abbeville, Louisiana. She graduated from Vermilion Catholic in 1984 with honors. In 1988 she received a bachelor of arts degree in elementary education from the University of Southwestern Louisiana. In 1992 she received a masters of arts in curriculum and instruction from Louisiana State University. After receiving her master's degree she did post graduate work at the University of Southeastern Louisiana and Nicholls State University to receive certification in the areas of Computer Literacy and Library Science. She is presently working on her doctorate degree in the Department of Curriculum and Instruction with a minor in educational technology at Louisiana State University. She plans to graduate in May of 2001 with the degree of Doctor of Philosophy.

Rachel has taught in the public school system in Lafayette and Point Coupee Parish for a total of ten years. During her education career she served as a school librarian and Computer Enrichment Teacher with the Title I program. She has also worked in the East Baton Rouge Parish Library System for three years serving as a library technician. She is presently employed as an Educational Technology Specialist with the Louisiana Center for Educational Technology which is a division of the Louisiana Department of Education.


DOCTORAL EXAMINATION AND DISSERTATION REPORT

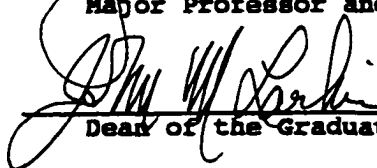
Candidate: Rachel Sellers

Major Field: Curriculum and Instruction



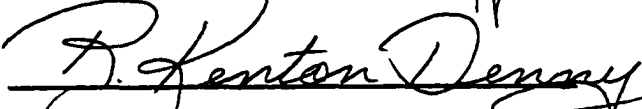

Title of Dissertation: Learning to Teach in a Virtual Environment: A Case Study of the Louisiana Virtual Classroom Teachers

Approved:


Major Professor and Chairman


Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

March 22, 2001
